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THE GULF STREAM MEANDERS EXPERIMENT. HYDROGRAPHIC DATA REPORT. --ETC(U)
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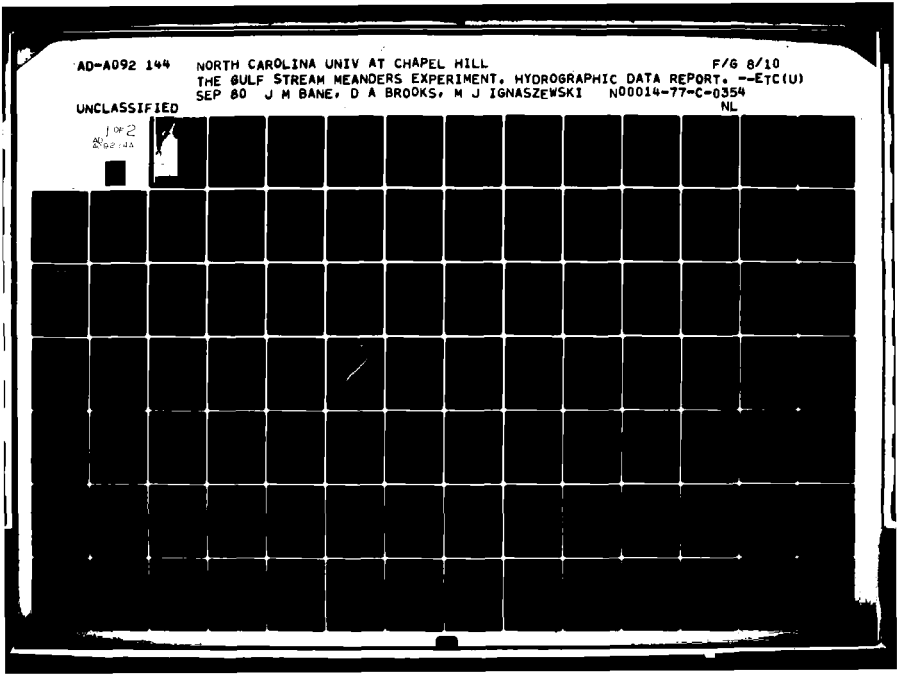


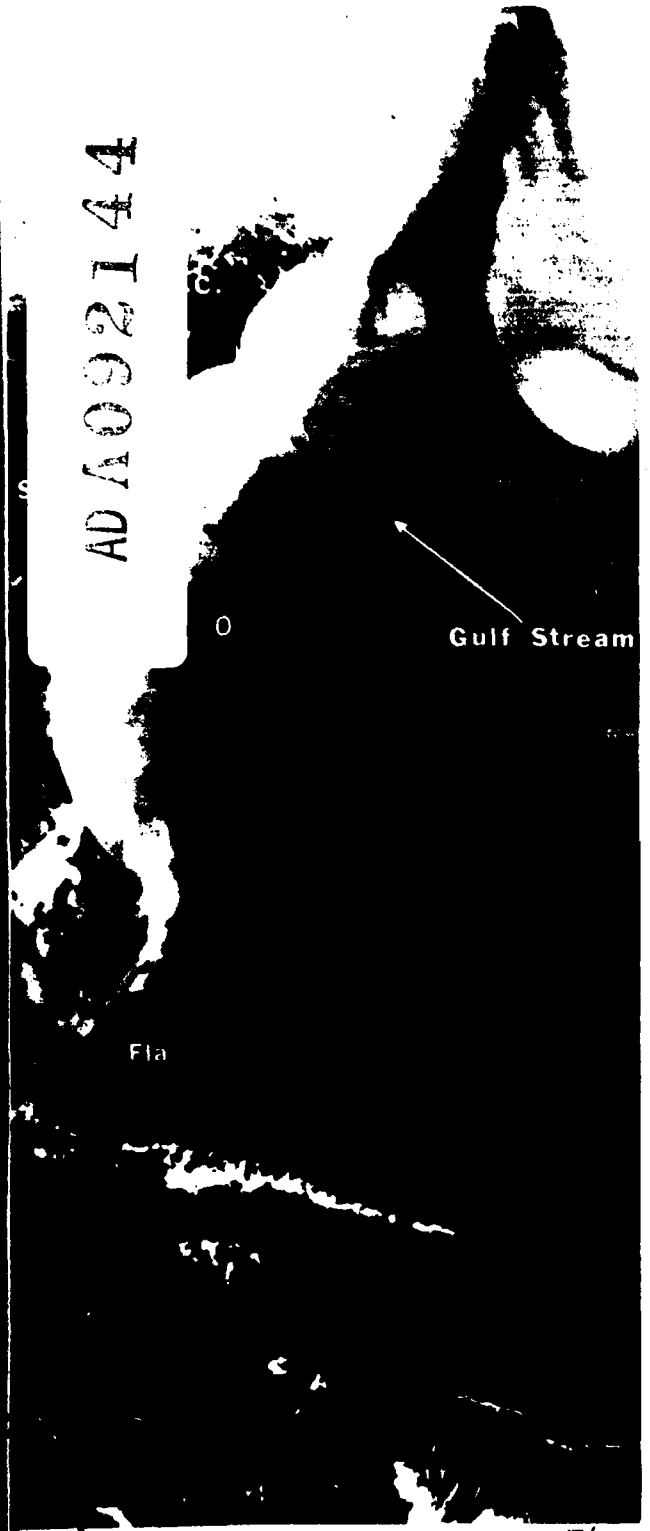
THE GULF STREAM MEANDERS EXPERIMENT

Hydrographic Data Report

R/V *Endeavor* Cruises

EN-040 (2-8 August 1979)

EN-045 (16-23 November 1979)



by

John M. Bane

David A. Brooks

Mark J. Ignaszewski

Texas A&M University

Reference 80-10-T

September 1980

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NSF-OCE77-25182

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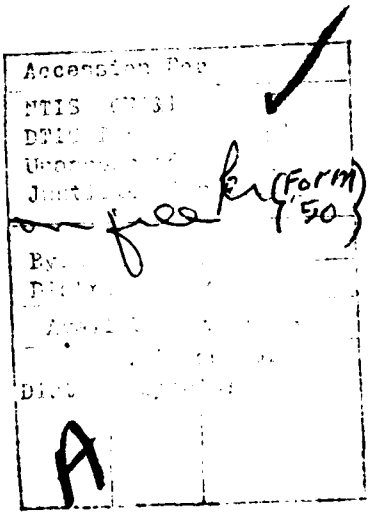
[1] University of North Carolina at Chapel Hill.

FOREWORD

This is the third in a sequence of seven reports from the Gulf Stream Meanders Experiment. The field phases of the experiment were implemented as a joint project of principal investigators at Texas A&M University (DAB), and at the University of North Carolina at Chapel Hill (JMB). The complete set of reports, not necessarily listed in their order of availability, is expected to be:

1. Hydrographic Data Report, EN-031 (Jan 79) and EN-037 (May 79). TAMU Technical Report 80-1-T, January 1980, 145 pp.
2. Current Meter, Atmospheric, and Sea Level Data Report for the January to May 1979 Mooring Period. TAMU Technical Report 80-7-T, July 1980, 264 pp.
3. Hydrographic Data Report, EN-040 (Aug 79) and EN-045 (Nov 79) TAMU Technical Report 80-10-T, September 1980, 170 pp.
4. Current Meter, Atmospheric, and Sea Level Data Report for the August to November 1979 Mooring Period.
5. Air-dropped XBT survey data report, Feb 79.
6. Air-dropped XBT survey data report, Nov 79.
7. Final project technical report.

Reports number 4, 5, and 6 will be issued at the University of North Carolina.



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SECTION 1

Introduction

This report documents hydrographic data collected during two cruises in R/V *Endeavor* in 1979: EN-040 (2-8 Aug) and EN-045 (16-23 Nov). These cruises were part of the second field phase of the Gulf Stream Meander project, sponsored by the National Science Foundation and the Office of Naval Research. The hydrographic data from two additional cruises during the first 1979 field phase of the project are documented in a separate report, (Brooks *et al.*, 1980). The hydrographic measurements were made in support of a moored instrument program. The data from the moored instruments (primarily current meters) are reported in separate data reports for the winter (Brooks *et al.*, 1980) and summer (Bane *et al.*, 1980) 1979 field phases.

The objective of the hydrographic program was to vertically and horizontally map the temperature and salinity fields of the Gulf Stream, hopefully as a meander passed through the moored instrument array. The hydrographic measurements were made in conjunction with mooring deployment and recovery operations.

The data reported here were collected with a Plessey 9040 STD system attached to a Niskin rosette sampler equipped with Niskin sample bottles and reversing thermometers. In addition, many temperature profiles were made with a Sippican XBT System. Surface bucket samples were taken at most stations. Beyond the presentation of contoured fields of certain derived

hydrographic quantities (e.g., σ_t), the data are not "analyzed." Interpretation of the data is not provided here. The data set will be made available to interested persons through the National Oceanographic Data Center.

SECTION 2

Data Collection, Calibration and Processing

2.1 STD DATA

The Plessey STD and its recording system were part of the shipboard scientific equipment of the R/V *Endeavor*. The calibration and maintenance of this equipment was performed by personnel from the University of Rhode Island, the ship operating institution.

Calibration samples, taken to provide scale corrections of temperature and salinity, if necessary, were collected with a Niskin rosette sampler. Samples were taken after equilibration stops at the greatest cast depth, on the upcast at various mid-depths, and at 10 m below the surface. Some of the mid-depth samples were used to confirm interesting features in the profiles, such as the sub-surface salinity maximum characteristic of Gulf Stream waters.

Due to problems with the recording equipment, there were significant differences in the method of STD data collection between the two cruises. The method used on each of the cruises will be explained separately.

2.1.1 Cruise EN-040

The temperature channel of the analog data recorder (Speedomax) was not functioning properly on this cruise. Thus we obtained only profiles of salinity versus depth from the STD casts. To make these traces useful, an XBT was dropped on each STD station to provide the temperature versus depth profile.

Throughout the remainder of this data report these stations will be referred to as STD/XBT stations. A total of 19 STD/XBT stations were taken on this cruise.

The XBT traces were digitized at TAMU using the XBT software; the method and resolutions are given in section 2.2. The salinity traces were digitized at TAMU on a Hewlett-Packard (HP) model 9864 digitizer under the control of a HP model 9830A calculator. The digitizing resolution was 0.002‰ in salinity and 0.79 m in depth. The salinity traces were digitized at the limit of the digitizer resolution in depth and interpolated to one meter intervals. These data were then block averaged over 5 m intervals. The digitized XBT traces were interpolated to 5 m intervals, and combined with the salinity data to give salinity and temperature versus depth for each STD/XBT station.

The calibration data for this cruise shows a good agreement between the STD-measured salinities and the sample bottle salinities. The temperature data shows greater variability. This variabillity is caused by the XBT's being less accurate in both temperature and depth than the STD; also, the XBT's were dropped as much as 45 minutes before the samples were taken on the upcast of the STD, during which time the ship was experiencing on-station drift. Based on these calibration results, the salinities were corrected by subtracting 0.07‰; no corrections were applied to the temperature data.

2.1.2 Cruise EN-045

The STD data on this cruise were recorded in the form of real-time analog profiles of temperature and salinity on a Speedomax plotter. These profiles were digitized with a resolution of 0.002‰ in salinity and 0.005 C° in temperature. The depth resolution on the shallow casts (less than 750 m) was 0.79 m. On the deep casts (greater than 750 m), the resolution was 1.58 m.

The plots were digitized at the limit of the digitizer resolution in depth, and interpolated to one meter intervals. The one meter data were then block averaged over 5 m intervals.

The calibration data from the 31 STD casts made on this cruise show a good agreement between the STD-measured and the sample bottle values of temperature and salinity. Salinity corrections were applied by subtracting 0.07‰. No temperature corrections were applied since the mean difference (-0.01°C) was near the limit of STD and thermometer accuracy.

2.2 XBT DATA

Sippican T-4 and T-7 XBT's were used for the bulk of the temperature casts. Sippican T-10 XBT's were used for a few stations on the W line during cruise EN-045. XBT's were used to provide the best synoptic coverage possible. The XBT traces were digitized at TAMU on the same equipment that was used for the STD traces; a set of standard software exists at TAMU for the digitizing and subsequent processing of XBT's. The XBT traces are digitized at uneven depth intervals such that a straight line drawn between successive pairs of points will reconstruct the trace. The XBT graph paper is non-linear in both temperature and depth, resulting in digitizer resolution variation from 0.051 C° to 0.061 C° in temperature for all XBT traces. The depth resolution was 0.878 m to 0.971 m for all XBT stations except W10 to W15; the resolution for these was 0.372 m to 0.400 m in depth. Surface bucket temperatures were taken at most stations and are compared to surface XBT temperatures in this report. Due to poor XBT trace resolution immediately after launch, ships motion, thermistor equilibration delays and relatively imprecise (± 0.1°C) bucket thermometers, the XBT profiles have not been forced to agree with surface bucket temperatures.

2.3 DERIVED HYDROGRAPHIC QUANTITIES

The STD data were used to generate a T-S correlation for each cruise. The stations are separated into those which have only waters characteristic of the Gulf Stream and those which show coastal influences. The coastal influences show up as relatively fresh water near the surface; in general, the T-S correlation of these stations merges with that of the characteristic Gulf Stream waters at depth. A line was hand drawn through the T-S pairs of those stations which display only characteristic Gulf Stream water. These stations were A10, A11, A12, A13, A14, H9 and H10 for EN-040 and A12, A13, A14, G9, G10, G11, Z13, Z15, X9, X10 and X11 for EN-045. A cubic spline fit was made to this line, resulting in a functional relationship between temperature and salinity. Derived profiles of salinity were computed from all XBT profiles using the T-S correlation. The derived salinity and other hydrographic fields computed from the temperature and derived salinity are estimates of the actual Gulf Stream fields, but they exclude the influences of coastal waters. The greatest error will occur at the inshore stations near the surface. At the end of Part II there is a comparison of the T-S correlatons of EN-040 and EN-045 with NODC historical T-S correlation for the same area. Summer and winter historical T-S correlations are shown.

The temperature and salinity (measured or derived) profiles were used to generate derived hydrographic profiles of sigma-t (σ_t) and Brunt-Väisälä frequency (N^2) for each station. The hydrographic parameters were calculated using algorithms developed at Scripps Institute of Oceanography as part of their Capricorn system. The computational results obtained by these algorithms have been shown to be in good agreement with the results of algorithms used by other institutions (Sweers, 1971). The Brunt-Väisälä frequency was computed as

$$N^2 = g\left[\frac{-1}{\rho} \frac{\partial \rho}{\partial z} - \frac{g}{C^2} \right]$$

where C is the speed of sound propagation.

2.4 CONTOURED FIELDS

Much of the data in this report is presented as contoured cross-stream sections of directly measured and derived hydrographic fields. This format lacks the details of the individual station profiles, due to necessary smoothing by the contouring routine. The contouring routine performs a series of interpolations in order to draw the sections. First, the parameter is linearly interpolated to standard depths at each station. Then the values at each depth level are interpolated horizontally to an evenly-spaced grid by a cubic spline under tension. The contours are then drawn through the grid by a cubic spline under tension.

There has been no subjective editing performed on these contours. The only "editing" present is in the smoothing built into the contouring routine. This can cause some unrealistic-looking features in the sections, especially in some of the derived fields.

SECTION 3

Report Organization

This report consists of two major parts, one for each cruise. Each part consists of a table of station names, dates, and positions followed by a map of the study area, meteorological and sea state data, STD calibration data, STD section contours, T-S correlations, XBT calibration data, XBT station profiles, and XBT section contours.

Following Part II, a comparison between NODC historical T-S data and the T-S correlation from each of the two cruises is shown. The area over which the historical data were taken is also shown. A comparison of the T-S correlations of the four cruises which comprised the two field pheses of this project is also shown.

Part I

Cruise EN-040

The objective of cruise EN-040 was to deploy four current meter moorings and then perform a hydrographic survey of the array area; the survey was to consist of eight cross-Stream transects, running upstream, and one along-Stream transect, approximately along the 400 m isobath.

Problems with an acoustic release necessitated our return to shore after completing the deployment of three current meter moorings and one STD/XBT transect along the transect furthest downstream. On the way toward shore a XBT transect was run along the same transect.

The hydrographic survey was continued, approximately 16 hours later, along an upstream transect. A short break (one hour) was taken in one of the transects to redeploy the last current meter mooring. A total of six cross-Stream transects and one along-Stream transect were taken.

Station	Date/Time (GMT)	Latitude (N)	Longitude (W)	Station Type	Cast Depth (m)	Discrete Samples
Mooring A	3 Aug 79/0405	33°28.3'	76°52.6'	deployment	200	0
Mooring B	0647	33°21.9'	76°41.3'	deployment	410	0
Mooring C	1036	33°51.1'	76°14.7'	deployment	400	0
Mooring D	1556	33°55.4'	76°11.5'	deployment	390	0
H02	3 Aug 79/1826	34°18.7'	76°24.4'	STD/XBT	25	Bucket; 2
H03	2135	34°15.3'	76°16.9'	STD/XBT	28	Bucket; 2
H04	2223	34°11.6'	76°13.2'	STD/XBT	28	Bucket; 2
H05	2326	34°08.3'	76°08.3'	XBT	150	Bucket
H06	2358	34°05.1'	76°03.1'	STD/XBT	325	Bucket; 4
H07	4 Aug 79/0222	34°01.5'	75°58.0'	STD/XBT	365	Bucket; 5
H08	0620	33°59.3'	75°51.4'	STD/XBT	220	Bucket; 3
H09	1105	33°55.8'	75°47.1'	STD/XBT	750	Bucket; 6
H10	1421	33°52.6'	75°41.8'	STD/XBT	750	Bucket; 4
H09	4 Aug 79/1751	33°55.8'	75°47.3'	XBT	757	0
H08	1827	33°59.2'	75°53.9'	XBT	595	0
H06	1920	34°05.0'	76°03.1'	XBT	350	0
H05	1948	34°08.3'	76°08.4'	XBT	98	0
H04	2016	34°11.5'	76°13.6'	XBT	43	0
H03	2046	34°14.6'	76°19.0'	XBT	33	0
H02	2110	34°18.0'	76°22.8'	XBT	35	0
F01	5 Aug 79/1344	34°10.3'	76°38.7'	XBT	36	0
F02	1410	34°07.1'	76°33.6'	XBT	38	0
F03	1436	34°03.8'	76°28.2'	XBT	42	0
F04	1502	34°00.6'	76°23.2'	XBT	47	0
F05	1530	33°57.4'	76°17.7'	XBT	197	0
F06	1557	33°54.3'	76°13.2'	XBT	388	0
F07	1624	33°51.1'	76°07.6'	XBT	506	0
F08	1653	33°47.8'	76°02.5'	XBT	616	0
F09	1726	33°44.4'	75°56.8'	XBT	880	0
F10	1756	33°41.1'	75°52.1'	XBT	937	0
F11	1834	33°38.0'	75°46.8'	XBT	905	0
F12	1850	33°34.9'	75°41.7'	XBT	897	0
F13	1916	33°31.7'	75°36.5'	XBT	894	0
F14	1945	33°28.5'	75°31.3'	XBT	923	0
F15	2014	33°25.3'	75°26.2'	XBT	921	Bucket

Table 1. EN-040 Station Summary. This table is continued on the next 3 pages.

Station	Date/Time (GMT)	Latitude (N)	Longitude (W)	Station Type	Cast Depth (m)	Discrete Samples
D15	5 Aug 79/2120	33°14.5'	75°36.0'	XBT	800	Bucket
D14	2147	33°17.2'	75°41.0'	XBT	862	Bucket
D13	2213	33°20.8'	75°46.3'	XBT	917	Bucket
D12	2240	33°24.2'	75°51.5'	XBT	918	Bucket
D11	2304	33°27.0'	75°57.0'	XBT	907	Bucket
D10	2328	33°30.6'	76°01.9'	XBT	880	Bucket
D09	2351	33°33.8'	76°07.1'	XBT	729	Bucket
D08	6 Aug 79/0015	33°36.9'	76°12.4'	XBT	601	Bucket
D07	0038	33°40.1'	76°17.8'	XBT	490	Bucket
D06	0102	33°43.8'	76°23.0'	XBT	375	Bucket
D05	0126	33°46.5'	76°28.0'	XBT	233	Bucket
D04	0152	33°49.8'	76°32.9'	XBT	65	Bucket
D03	0221	33°53.3'	76°38.3'	XBT	43	Bucket
D02	0248	33°56.2'	76°43.3'	XBT	30	Bucket
D01	0317	33°59.4'	76°48.5'	XBT	32	Bucket
C01	6 Aug 79/0425	33°48.5'	76°58.2'	XBT	37	Bucket
C02	0451	33°45.4'	76°53.0'	XBT	42	Bucket
C03	0515	33°42.5'	76°47.8	XBT	42	Bucket
C04	0542	33°38.9'	76°42.6'	XBT	159	Bucket
C05	0614	33°35.5'	76°37.5'	XBT	265	Bucket
C06	0644	33°32.6'	76°32.2'	XBT	399	Bucket
C07	0708	33°29.3'	76°27.0'	XBT	505	Bucket
C08	0731	33°26.1'	76°21.9'	XBT	591	Bucket
C09	0756	33°22.9'	76°16.5'	XBT	697	Bucket
C10	0819	33°20.0'	76°11.5'	XBT	822	Bucket
C11	0843	33°16.5'	76°06.5'	XBT	866	Bucket
C12	0909	33°13.3'	76°01.3'	XBT	873	Bucket
C13	0932	33°10.5'	75°55.1'	XBT	890	Bucket
C14	1000	33°06.8'	75°50.9'	XBT	892	Bucket
C15	1025	33°03.6'	75°45.8'	XBT	878	Bucket

Station	Date/Time (GMT)	Latitude (N)	Longitude (W)	Station Type	Cast Depth (m)	Discrete Samples
B15	6 Aug 79/1140	32°52.8'	75°55.5'	XBT	867	Bucket
B14	1207	32°56.0'	76°00.8'	XBT	871	Bucket
B13	1237	32°59.1'	76°06.1'	XBT	796	Bucket
B12	1305	33°02.4'	76°11.0'	XBT	852	Bucket
B11	1335	33°05.8'	76°16.3'	XBT	850	Bucket
B10	1403	33°08.8'	76°21.4'	XBT	799	Bucket
B09	1432	33°12.0'	76°26.4'	XBT	684	Bucket
B08	1502	33°15.3'	76°31.6'	XBT	518	Bucket
B07	1533	33°18.5'	76°36.7'	XBT	499	Bucket
B06	1620	33°22.0'	76°41.5'	XBT	400	Bucket
B05	1657	33°25.5'	76°47.2'	XBT	276	Bucket
B04	1724	33°28.1'	76°52.1'	XBT	207	Bucket
Mooring A	6 Aug 79/1731	33°28.2'	76°52.1'	deployment	200	0
B03	6 Aug 79/1815	33°31.3'	76°57.5'	XBT	60	Bucket
B02	1845	33°34.5'	77°02.6'	XBT	36	Bucket
B01	1910	33°37.8'	77°07.9'	XBT	29	Bucket
A01	6 Aug 79/2120	33°26.8'	77°17.4'	STD/XBT	25	2
A02	2248	33°23.9'	77°12.2'	STD/XBT	33	4
A03	7 Aug 79/0009	33°20.7'	77°05.5'	STD/XBT	110	5
A04	0205	33°17.3'	77°01.9'	STD/XBT	215	6
A05	0404	33°14.2'	76°56.7'	STD/XBT	272	Bucket; 6
A06	0617	33°10.9'	76°51.6'	STD/XBT	289	Bucket;12
A07	0914	33°08.0'	76°44.8'	STD/XBT	467	Bucket;12
A08	1127	33°04.8'	76°41.1'	STD/XBT	490	Bucket;12
A09	1459	33°01.4'	76°35.8'	STD/XBT	605	Bucket;11
A10	1800	32°58.1'	76°30.6'	STD/XBT	665	Bucket;11
A11	2114	32°54.9'	76°25.6'	STD/XBT	730	Bucket;12
A12	2345	32°51.6'	76°20.4'	STD/XBT	745	Bucket;12
A13	8 Aug 79/0158	32°48.4'	76°15.2'	STD/XBT	725	12
A14	0401	32°45.2'	76°10.3'	STD/XBT	750	Bucket;11

Station	Date/Time (GMT)	Latitude (N)	Longitude (W)	Station Type	Cast Depth (m)	Discrete Samples
A06	8 Aug 79/1022	33°10.7'	76°51.7'	XBT	400	Bucket
AB	1052	33°16.3'	76°46.7'	XBT	410	Bucket
B06	1125	33°20.4'	76°41.4'	XBT	419	Bucket
BC	1208	33°27.8'	76°36.7'	XBT	381	Bucket
C06	1239	33°32.5'	76°32.2'	XBT	383	Bucket
CD	1309	33°38.0'	76°27.5'	XBT	393	Bucket
D06	1342	33°43.5'	76°22.7'	XBT	384	Bucket
DF	1431	33°48.9'	76°17.7'	XBT	449	Bucket
F06	1504	33°54.6'	76°12.5'	XBT	370	Bucket
FH	1556	33°59.9'	76°08.0'	XBT	361	Bucket
H06	1634	34°05.2'	76°03.1'	XBT	352	Bucket

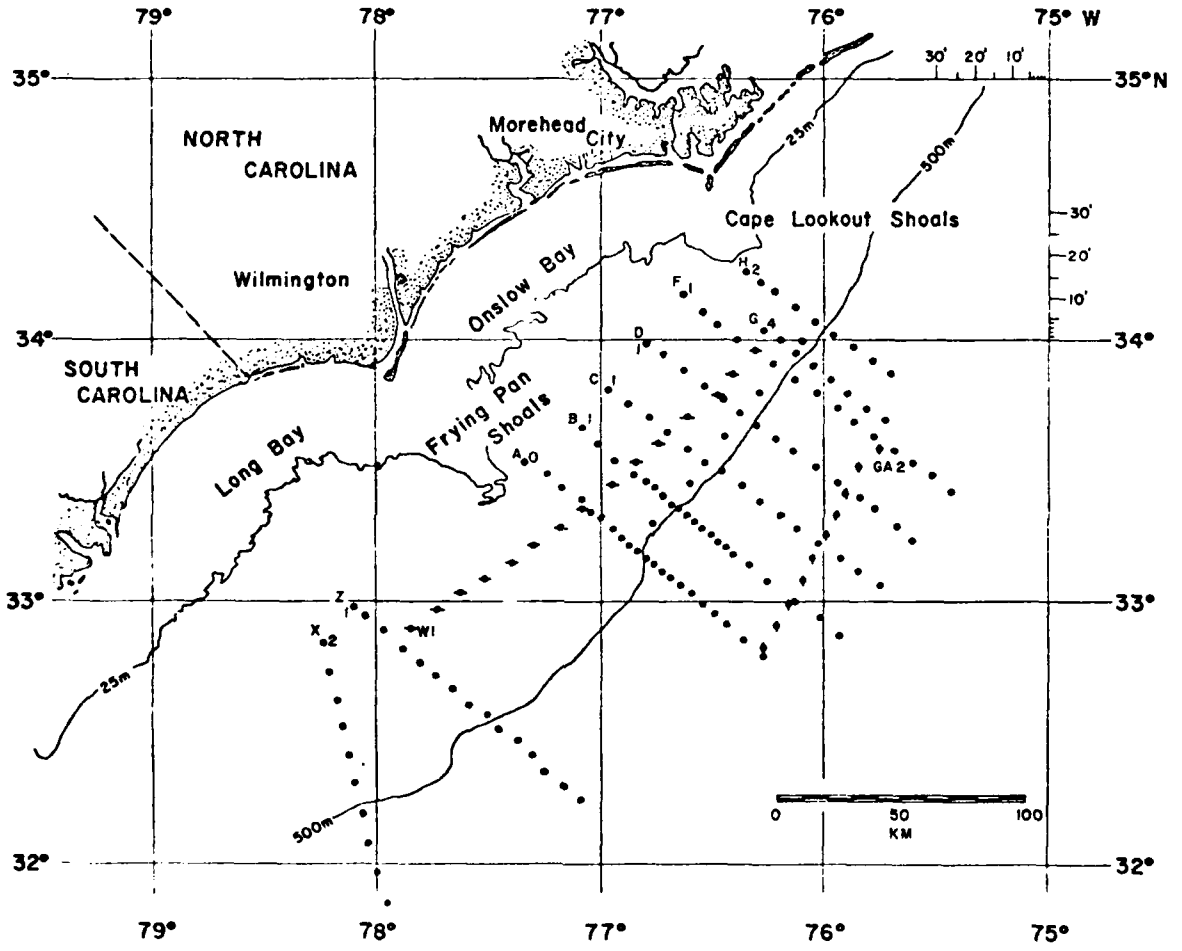


Figure 1. Map of study setting showing hydrographic stations occupied during cruises EN-040 and EN-045.

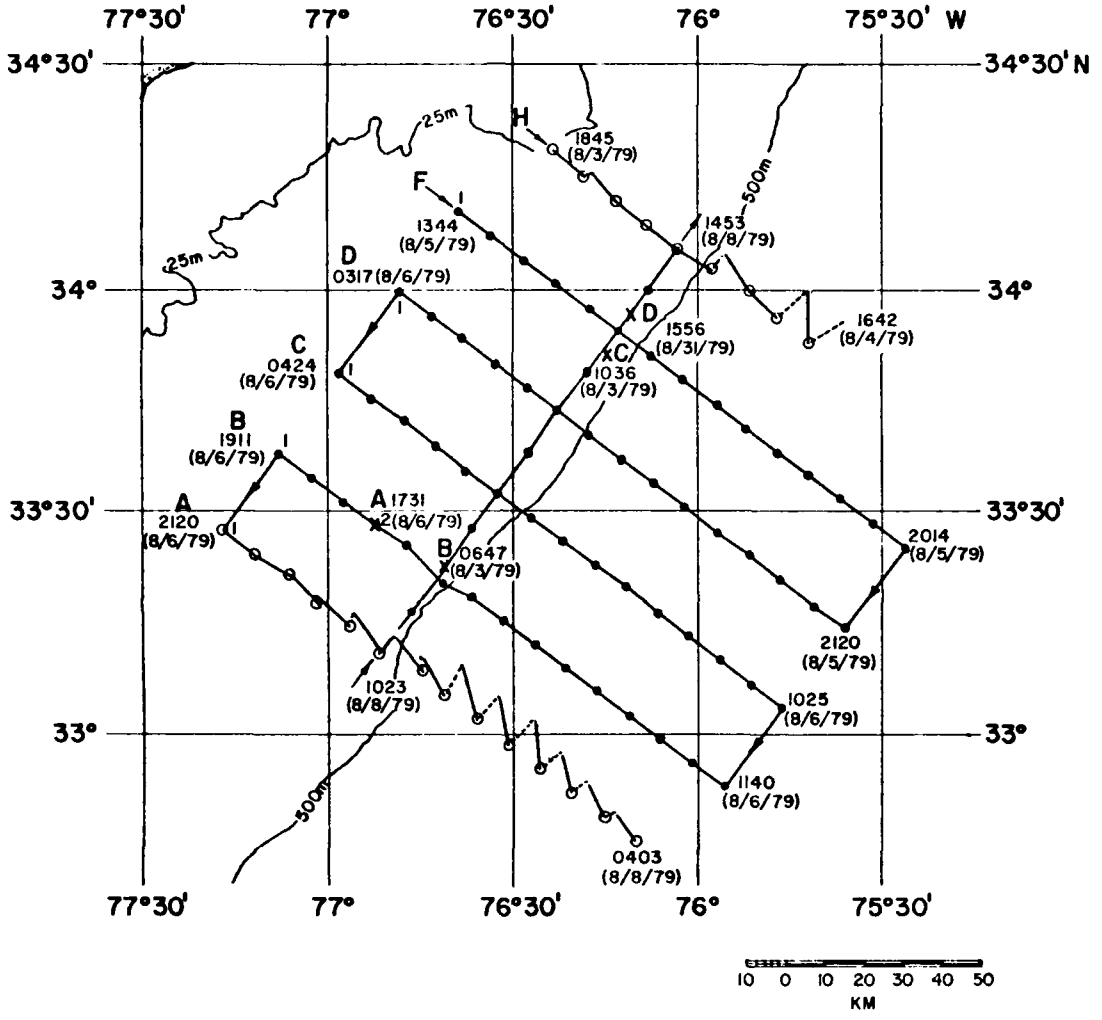


Figure 2. Detailed ship tracks for cruise EN-040. The solid dots represent XBT stations. The circles represent STD/XBT stations with the on-station drift shown by the dotted lines. The crosses represent current meter mooring locations.

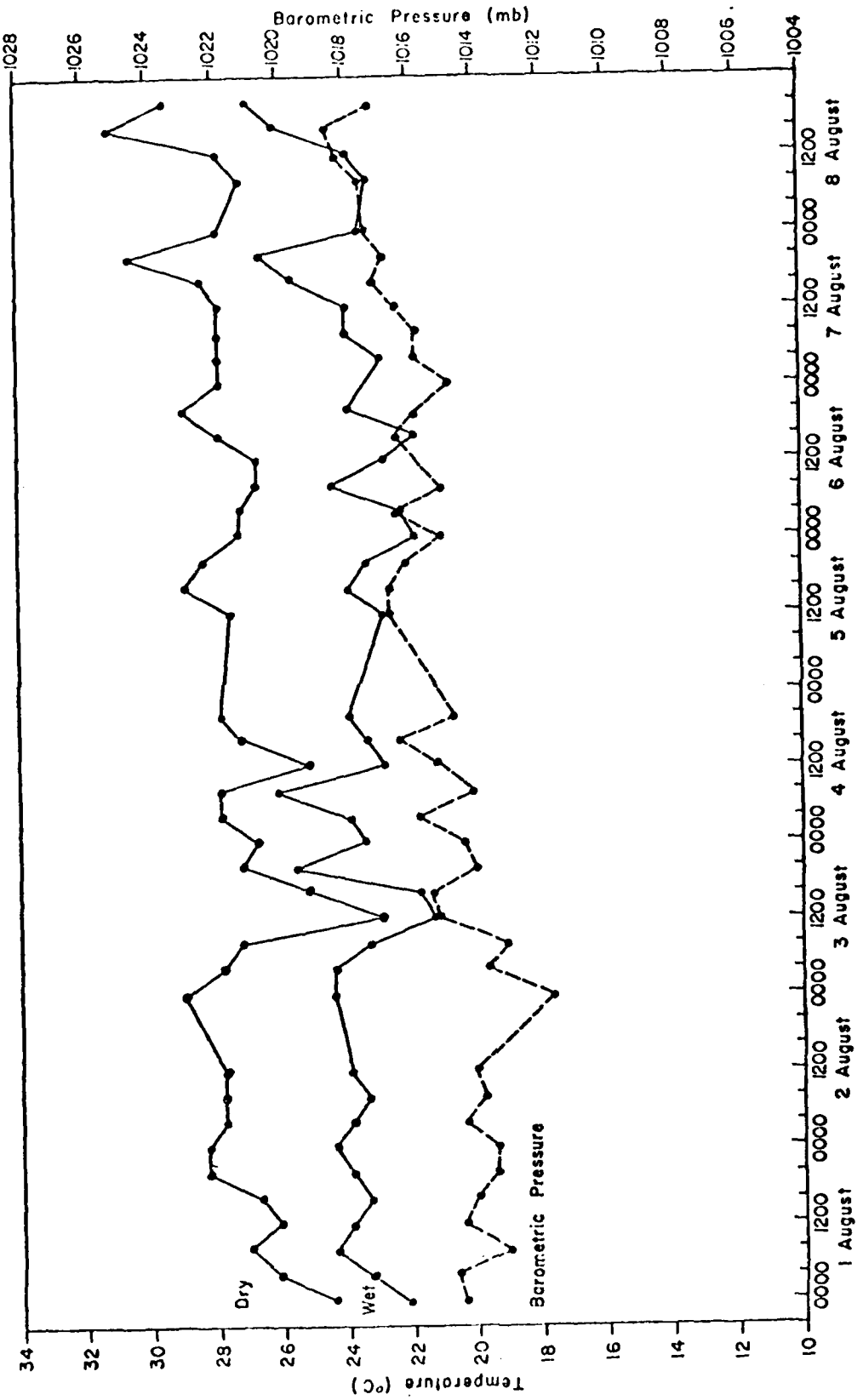


Figure 3. Meteorological parameters recorded aboard ship during cruise EN-040.

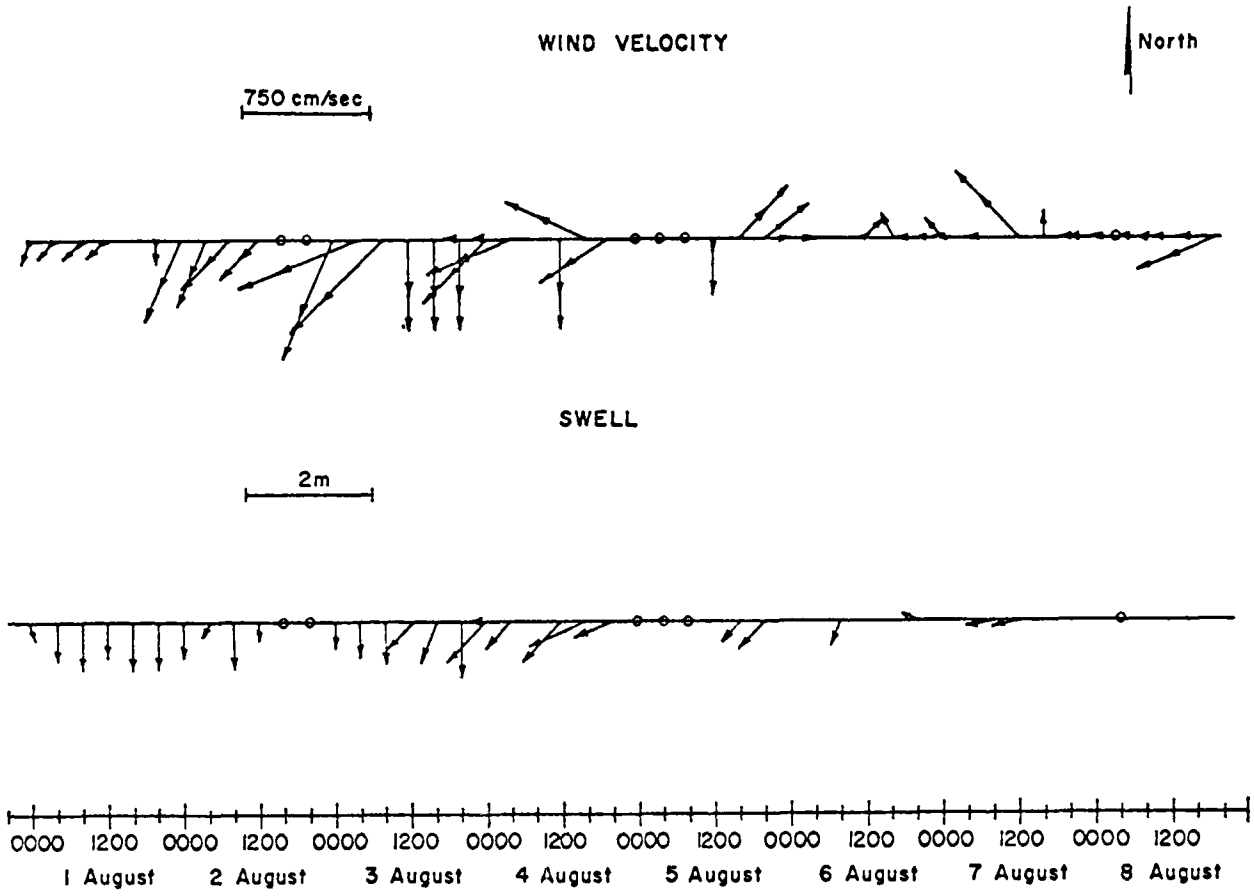


Figure 4. Wind and swell observations recorded aboard ship during cruise EN-040. The wind vectors point in the direction from which the wind was blowing, corrected for ships motion. The double arrowheads show the range of the recorded Beaufort scale. The swell vectors point in the direction from which the swell came. The circles represent times of no observations.

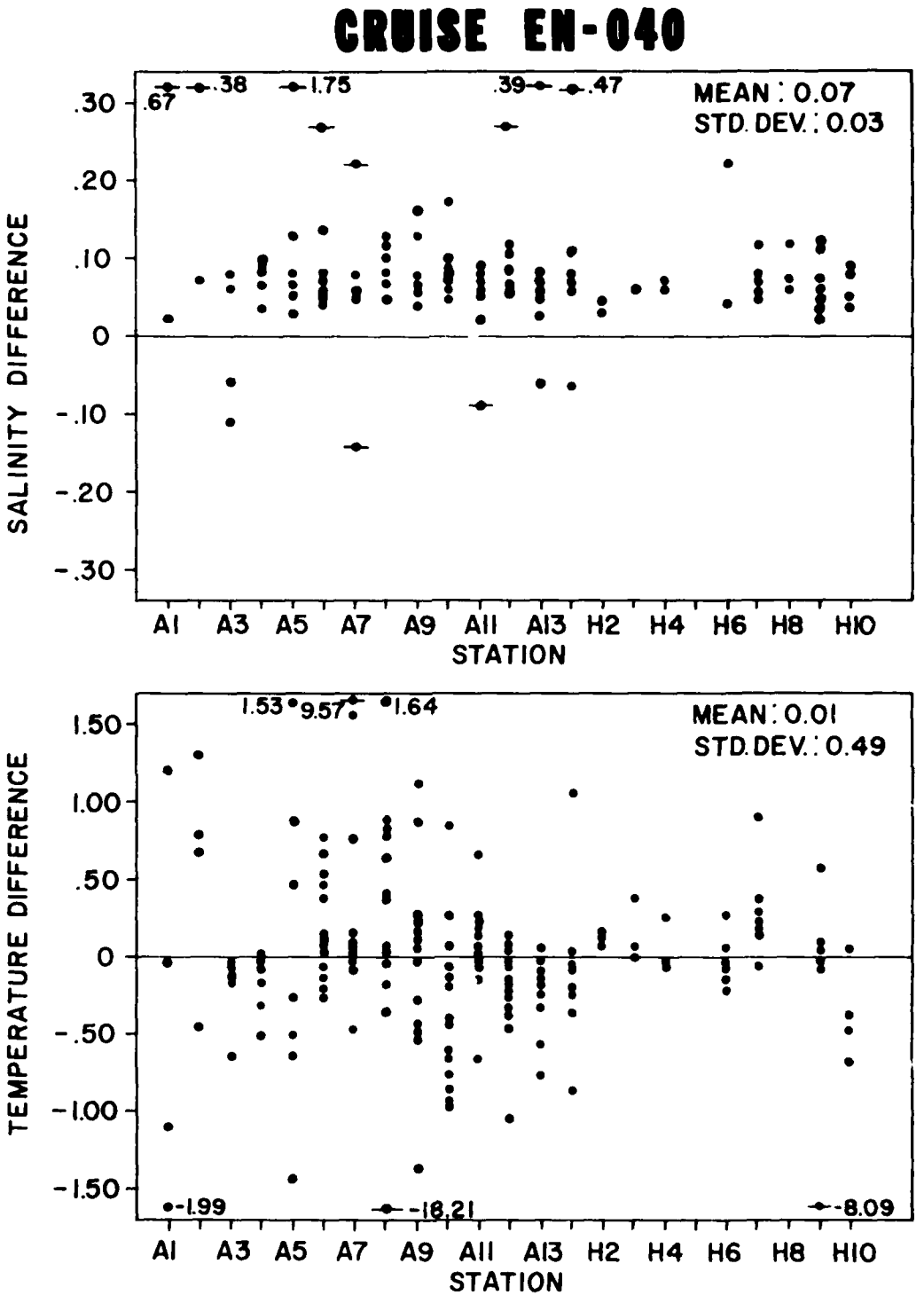


Figure 5. STD-measured minus bottle calibration salinity values and XBT-measured minus reversing thermometer temperature values for EN-040. STD salinity values were corrected by subtracting 0.07‰; no temperature correction was applied. Erroneous data points are flagged by horizontal bars.

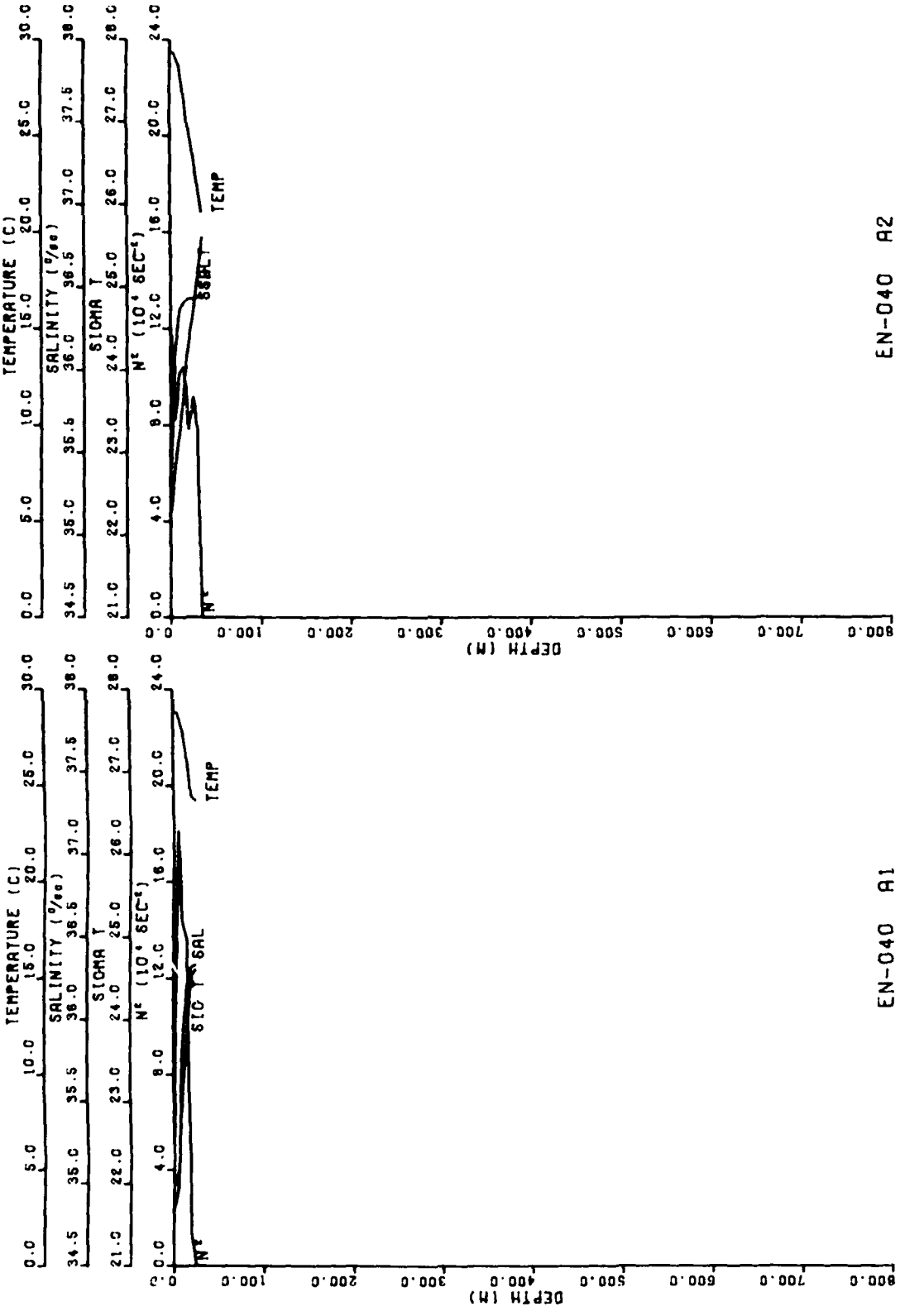
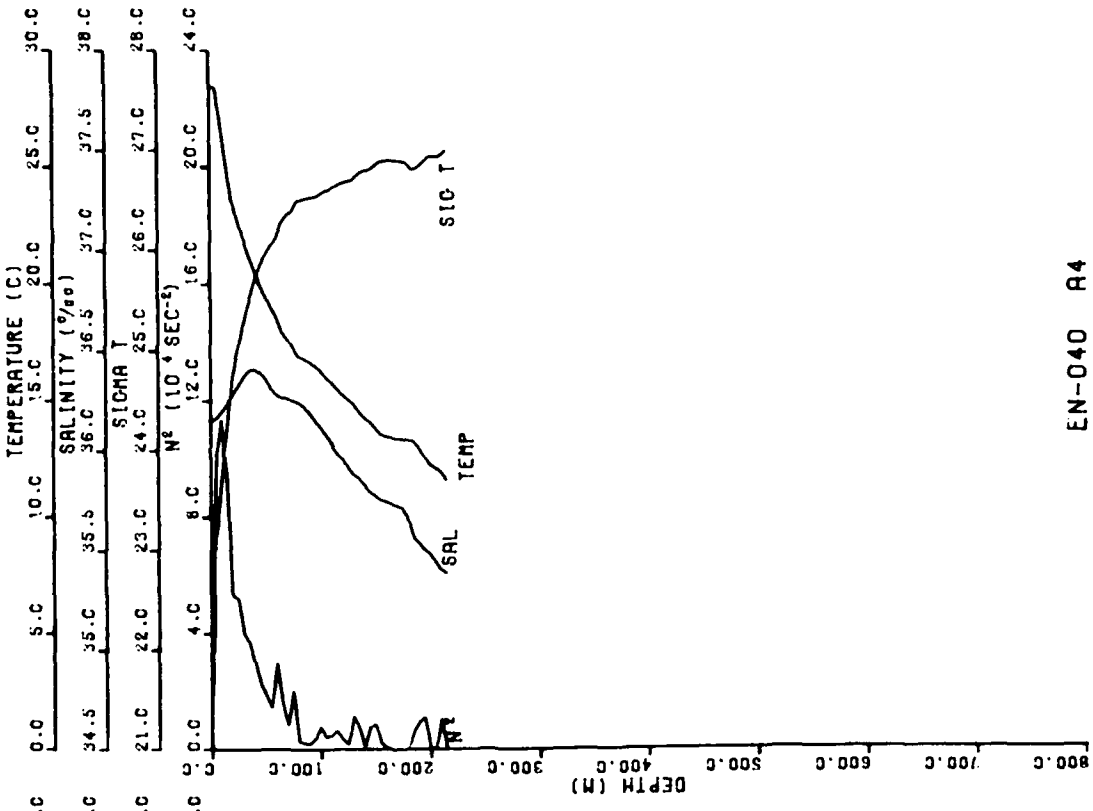


Figure 6. Individual STD/XBT station profiles of temperature, salinity and derived quantities sigma-t and N^2 for LN-040. Station locations are shown in Figure 2. This figure is continued on the next 9 pages.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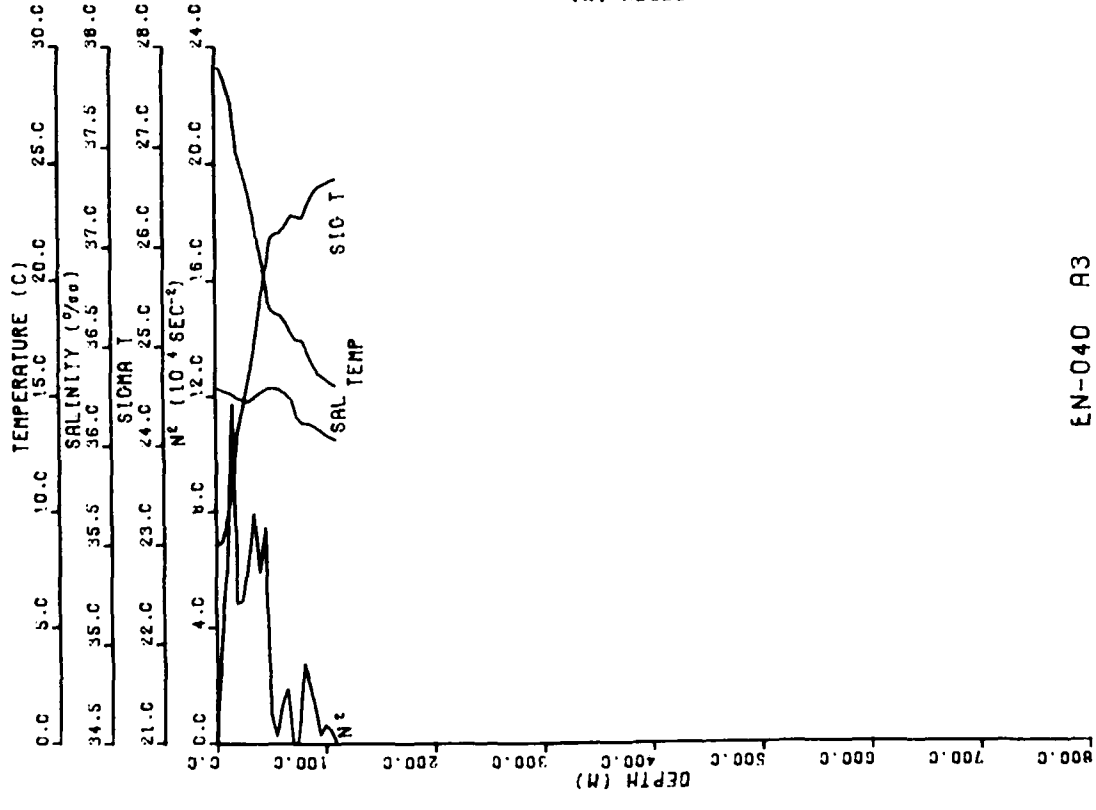
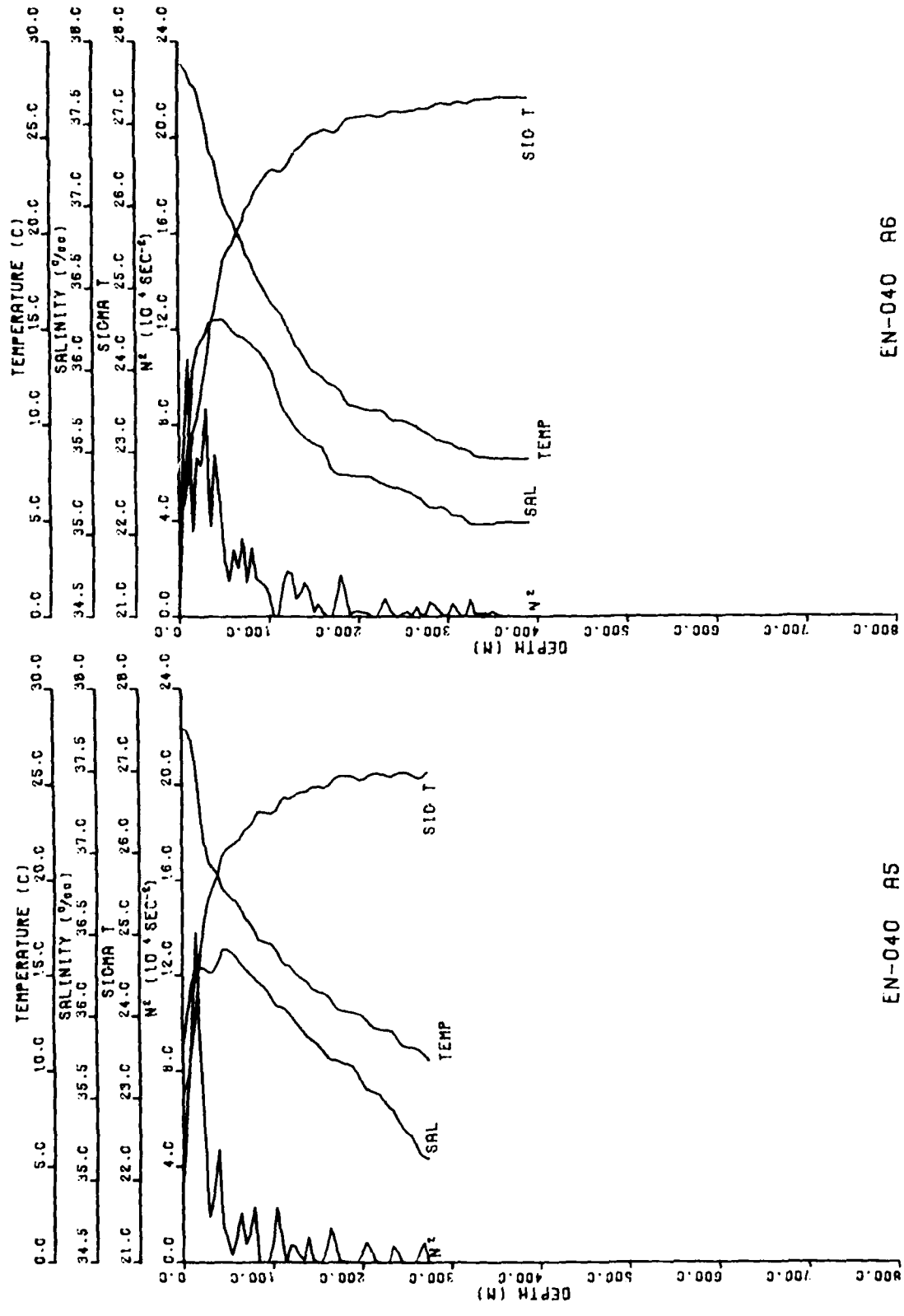
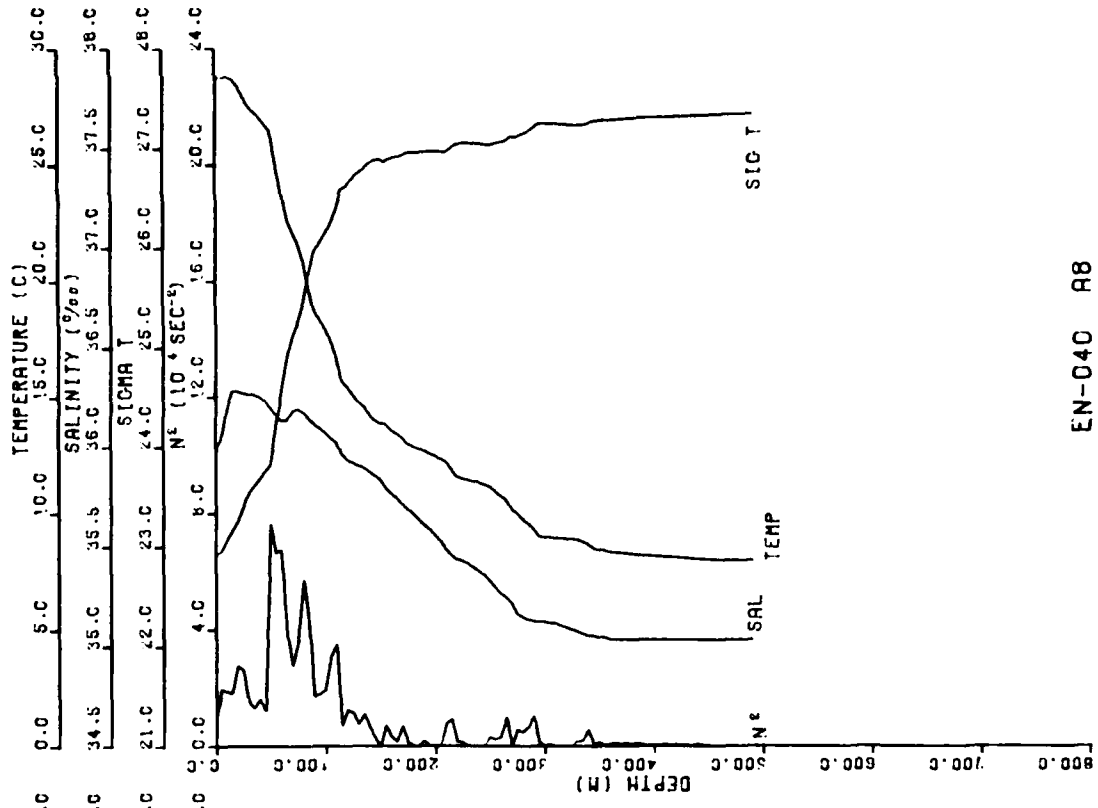
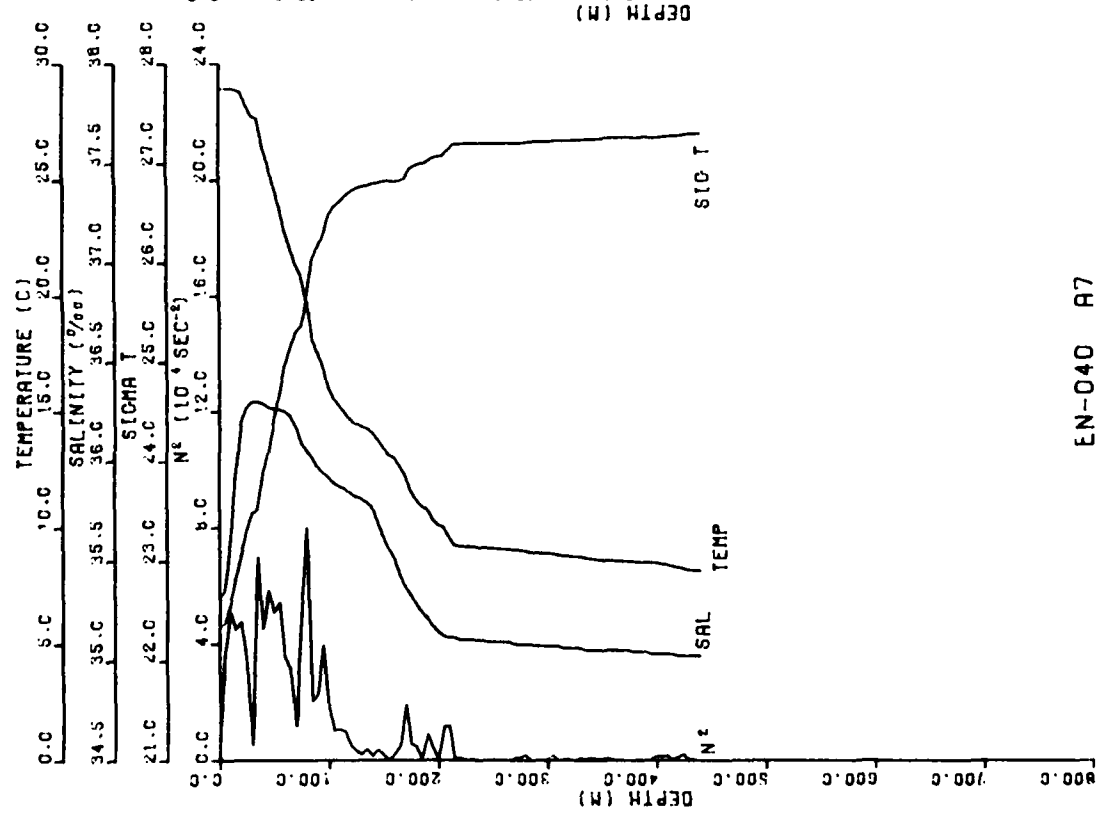
DEPTH (M)
EN-040 A4


TEMPERATURE (C)
SALINITY (‰)
SIGMA T
N² (10⁻⁴ SEC⁻²)
SIG T
SAL
TEMP
N²
DEPTH (M)
EN-040 A3

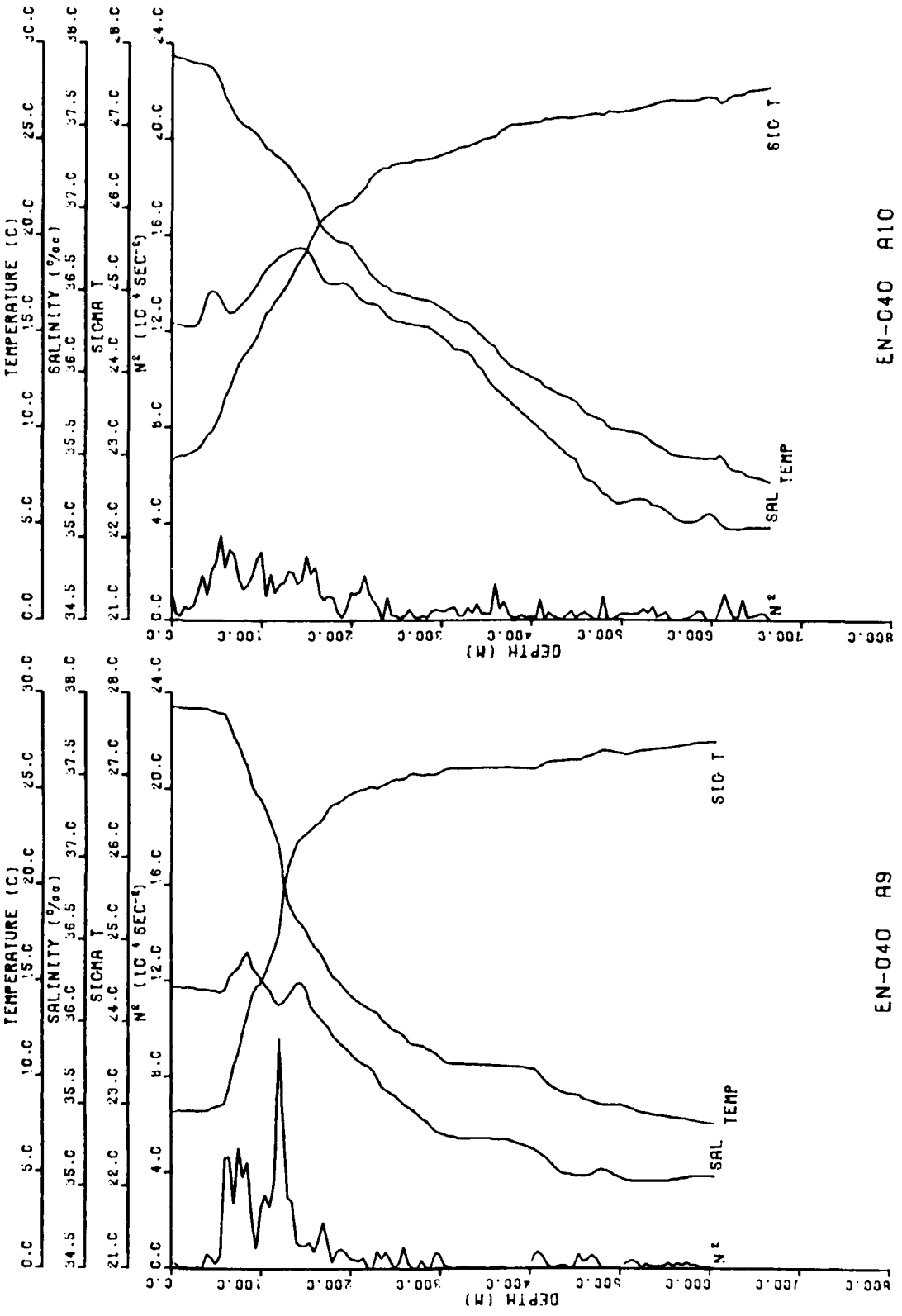

TEMPERATURE (C)
SALINITY (°/oo)
SIGMA T
N² (10⁻⁴ SEC⁻²)
DEPTH (M)
SIG T
SAL
TEMP
N²
EN-040 A6
EN-040 A5

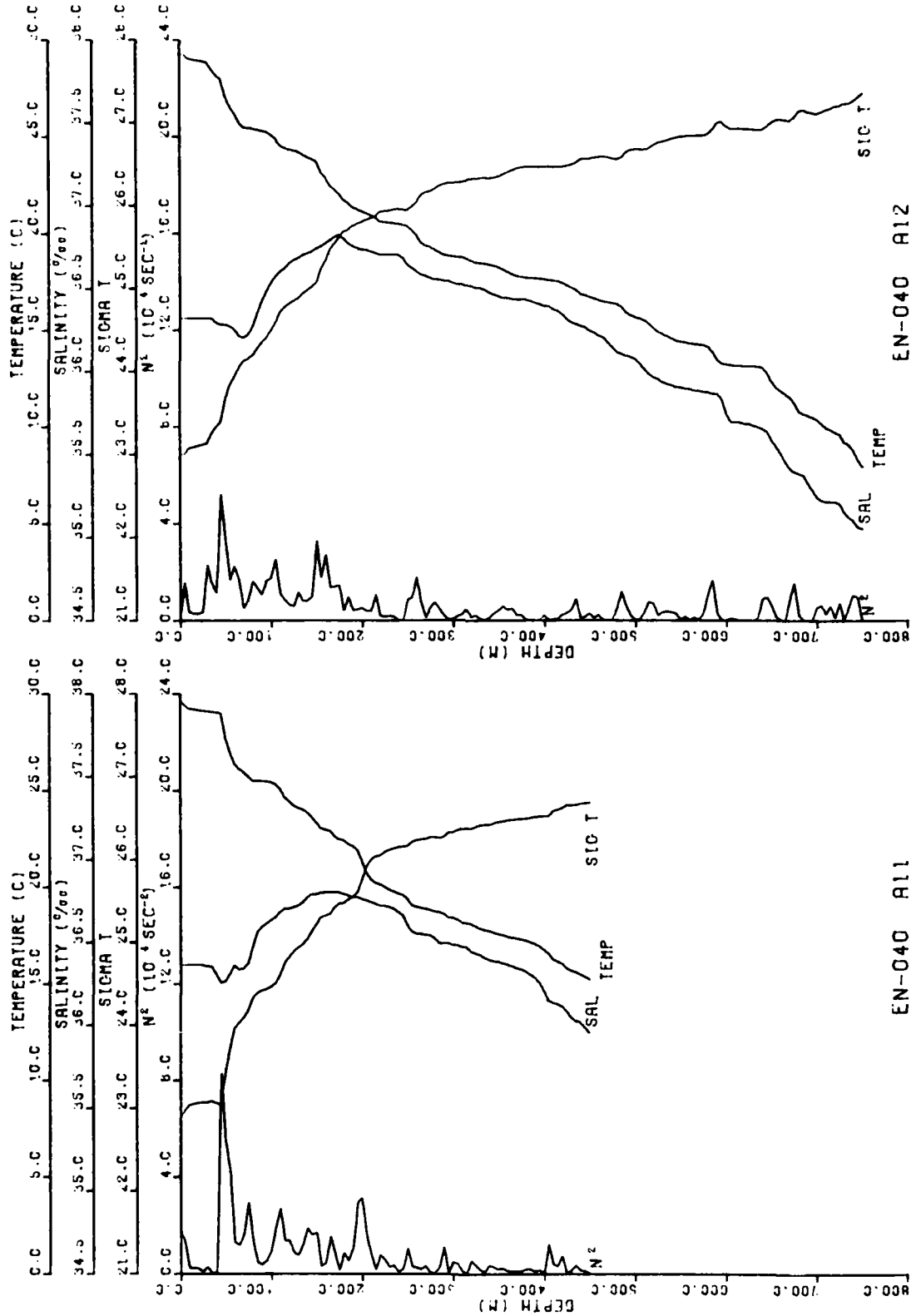


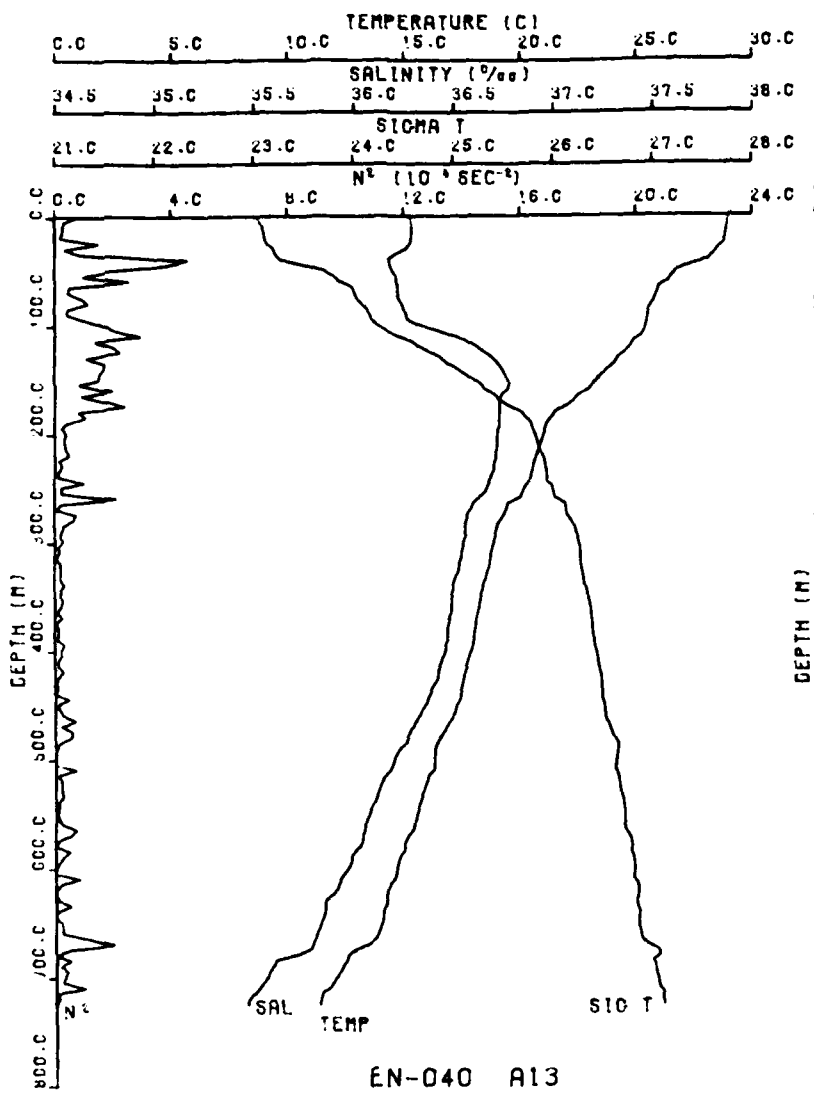
EN-040 A8



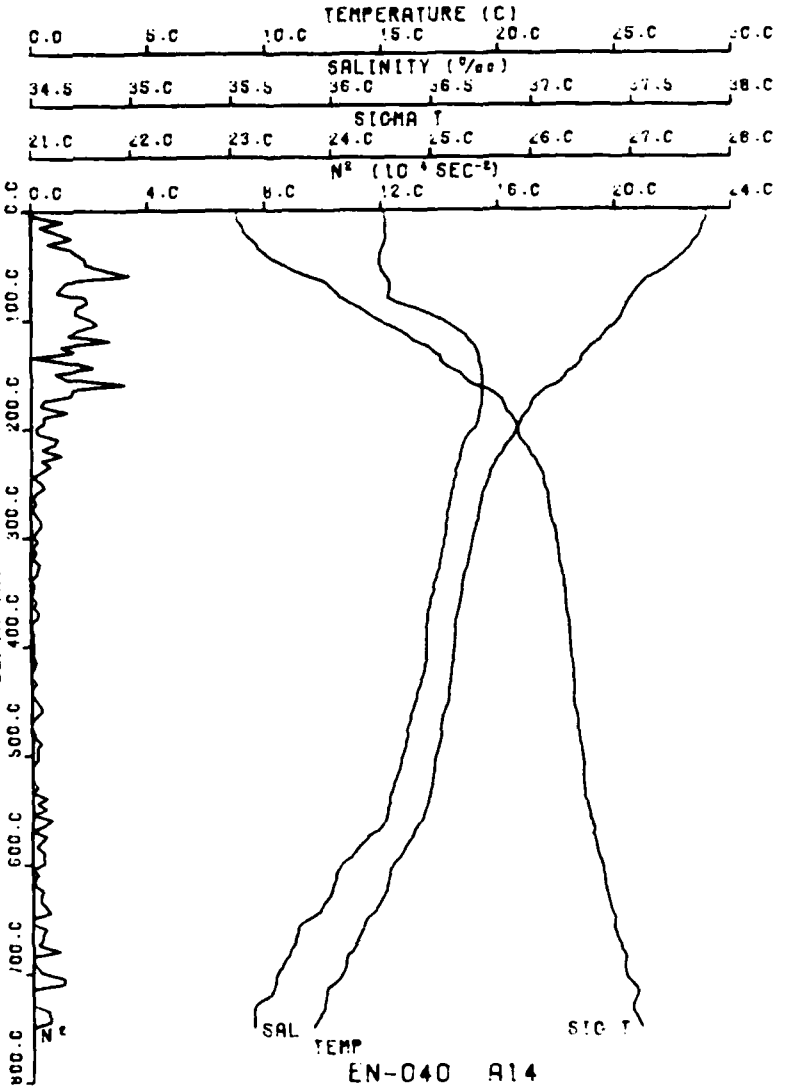
EN-040 A7


EN-040 A10
EN-040 A9
TEMPERATURE (C)
SALINITY (‰)
SIGMA T
N² (10⁻⁴ SEC⁻²)
DEPTH (M)
SIG T
SAL
TEMP
N²

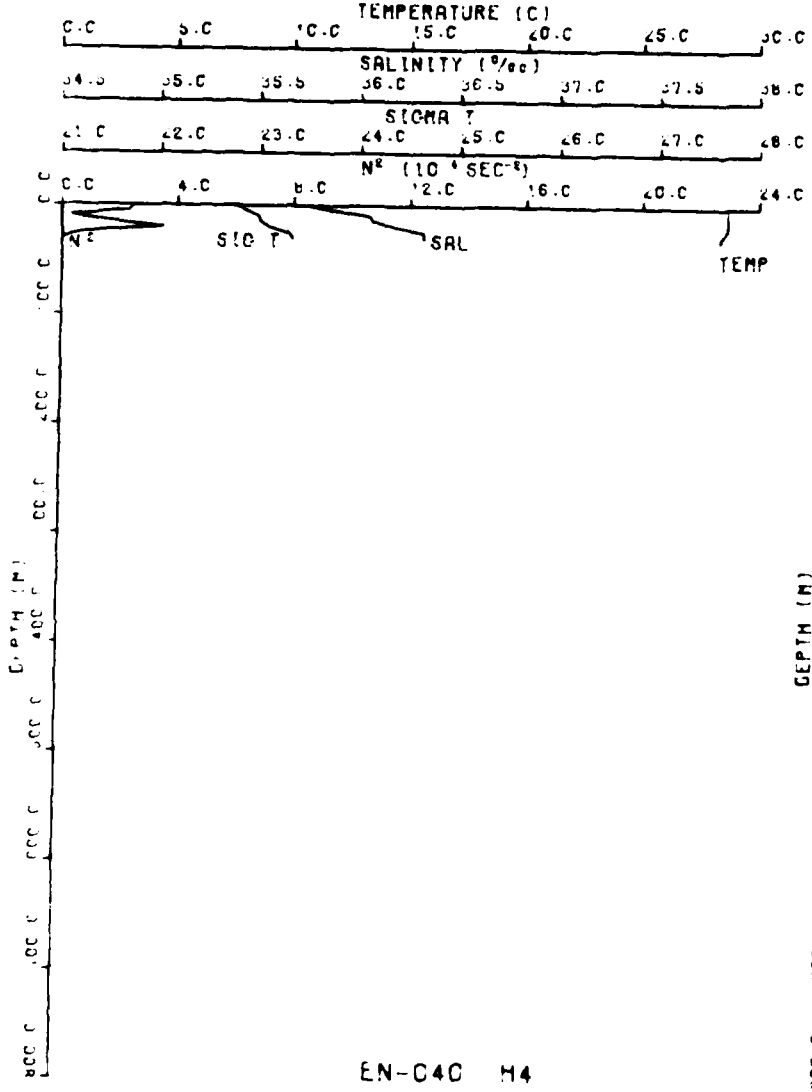

TEMPERATURE (C)
SALINITY (‰)
SIGMA T
N² (10⁻⁴ SEC⁻²)
DEPTH (M)
SAL
TEMP
SIG T
N²
EN-040 A12
EN-040 A11



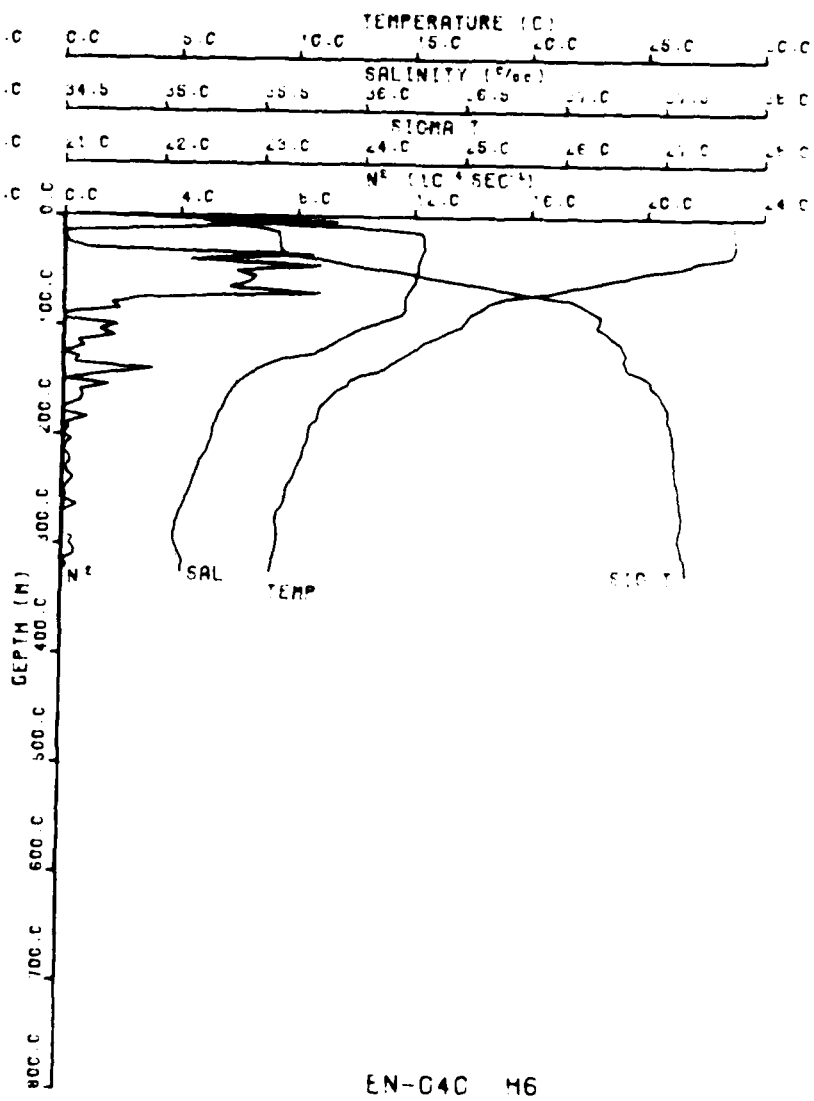
EN-040 A13



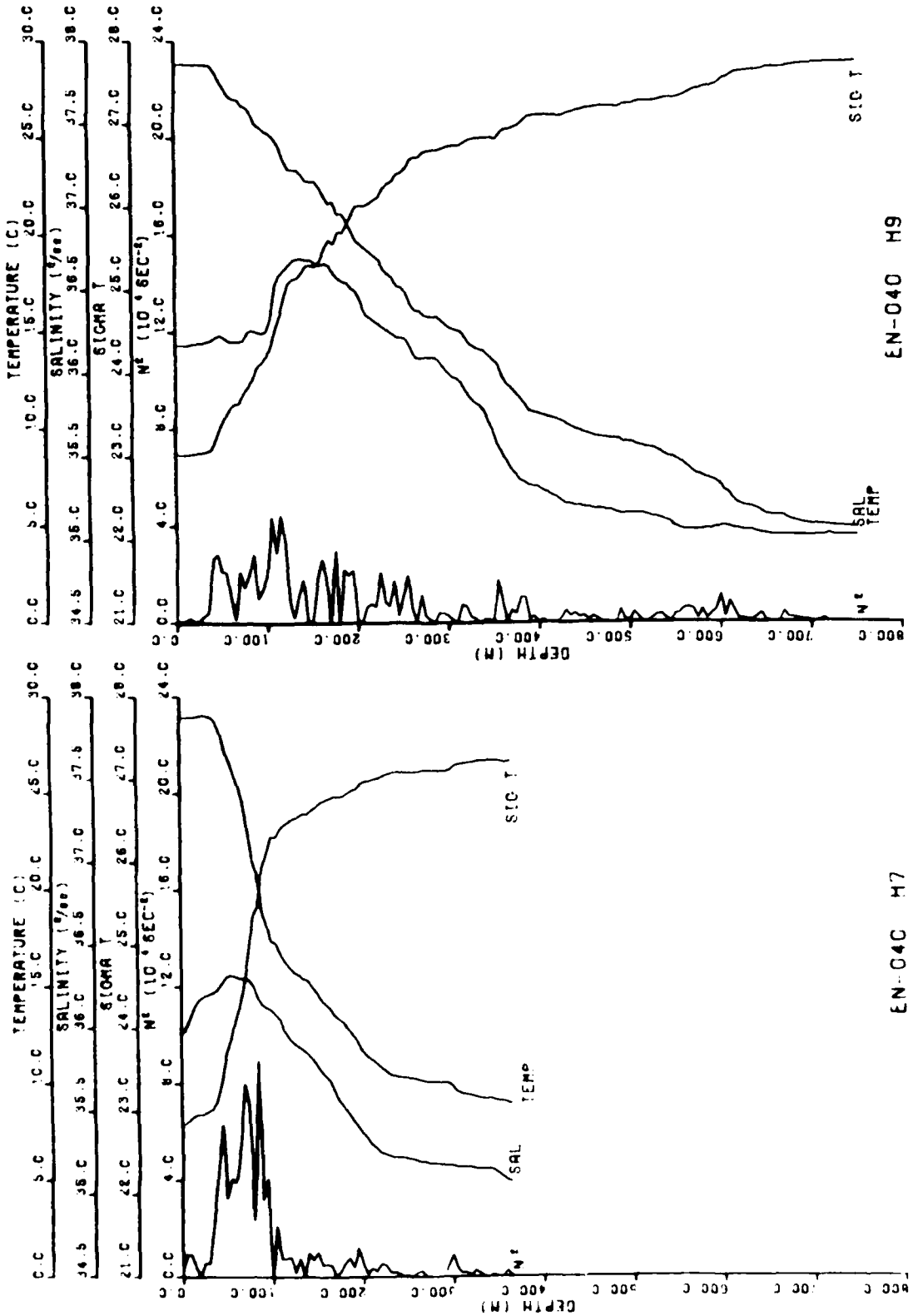
EN-040 A14

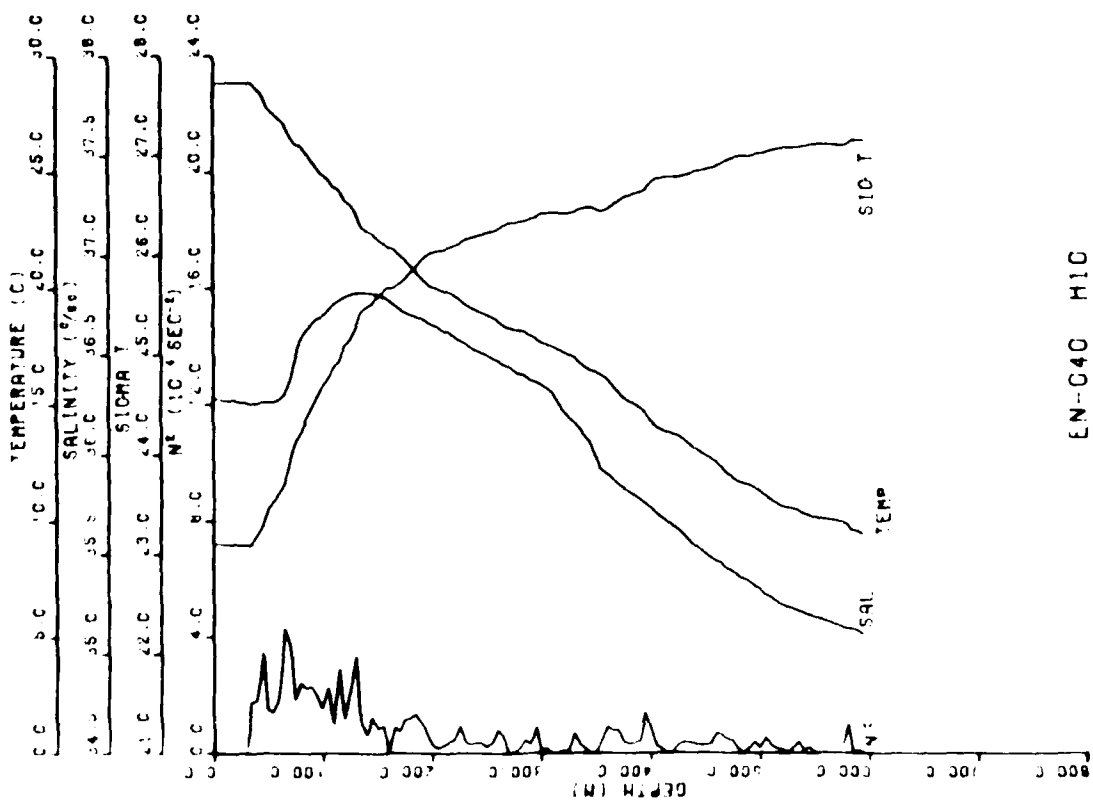


EN-C4C H4



EN-C4C H6


EN-040 H9
EN-040 H7
TEMPERATURE (C)
SALINITY (‰)
SIGMA T
N² (10⁻⁴SEC⁻²)
DEPTH (M)
SIG T
SAL
TEMP
N²


TEMPERATURE (C)
SALINITY (‰)
SIGMA T
N² (10⁻⁴ SEC⁻²)
DEPTH (M)
SIG T
TEMP
SAL
N²

EN-040 H10

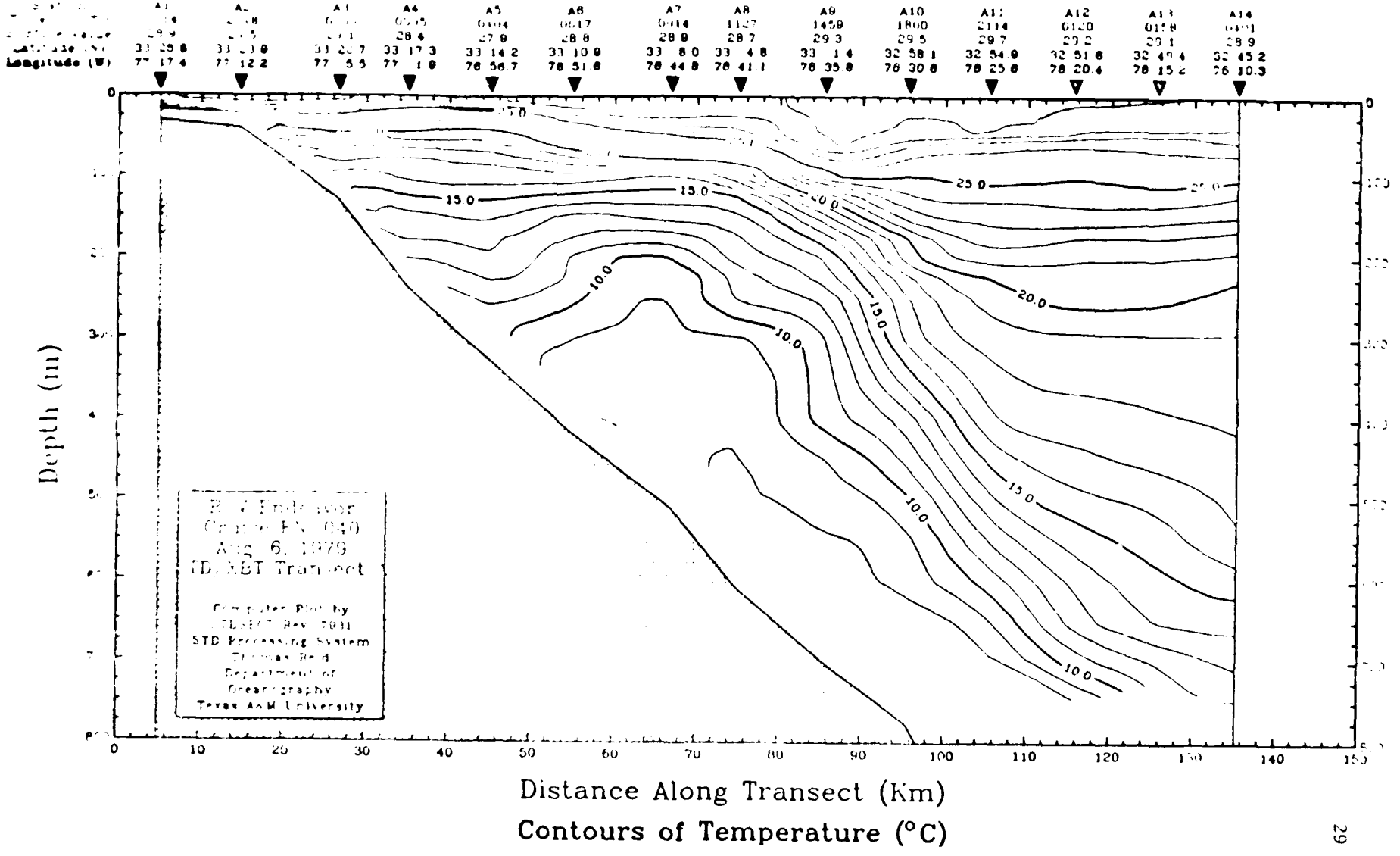
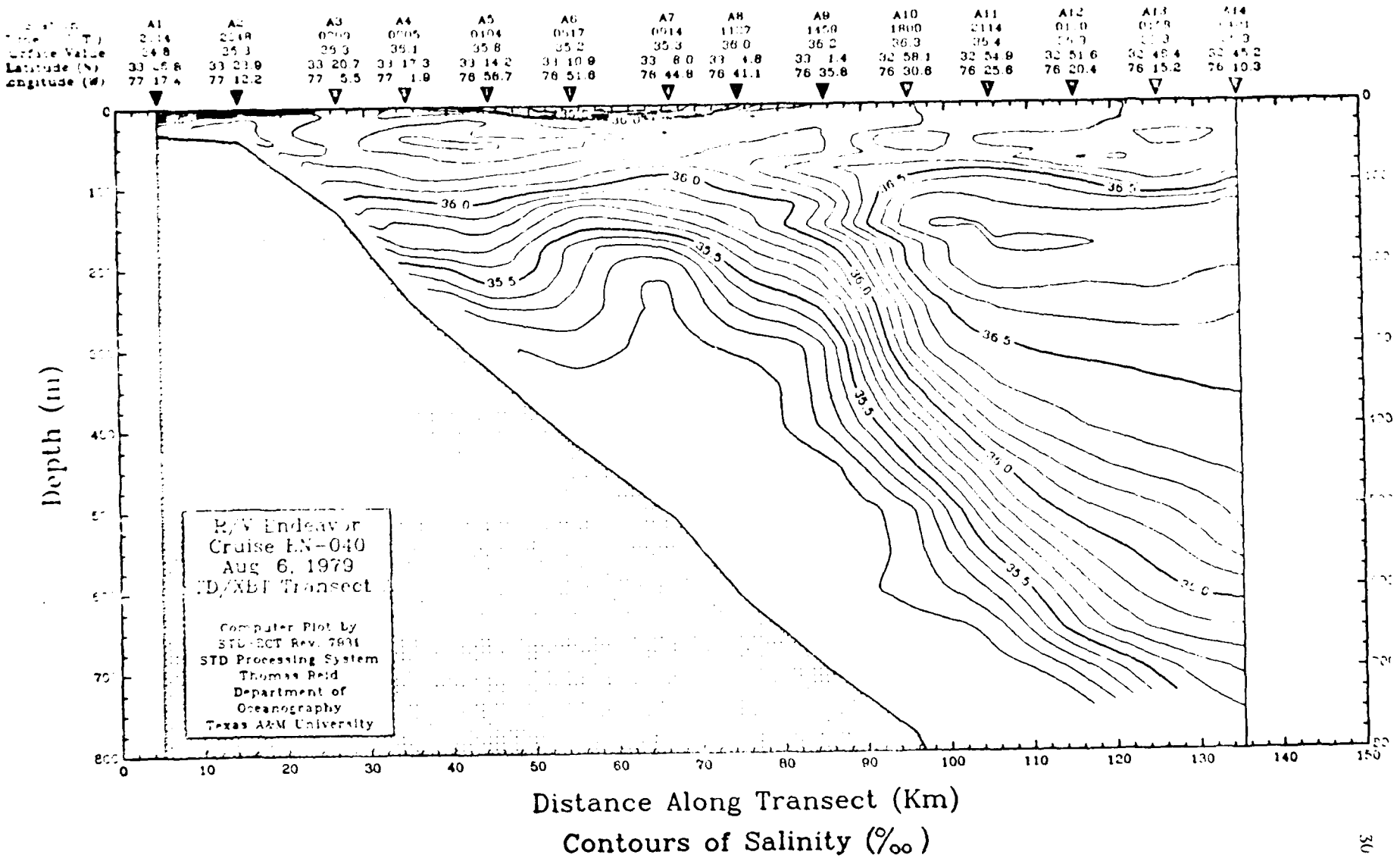
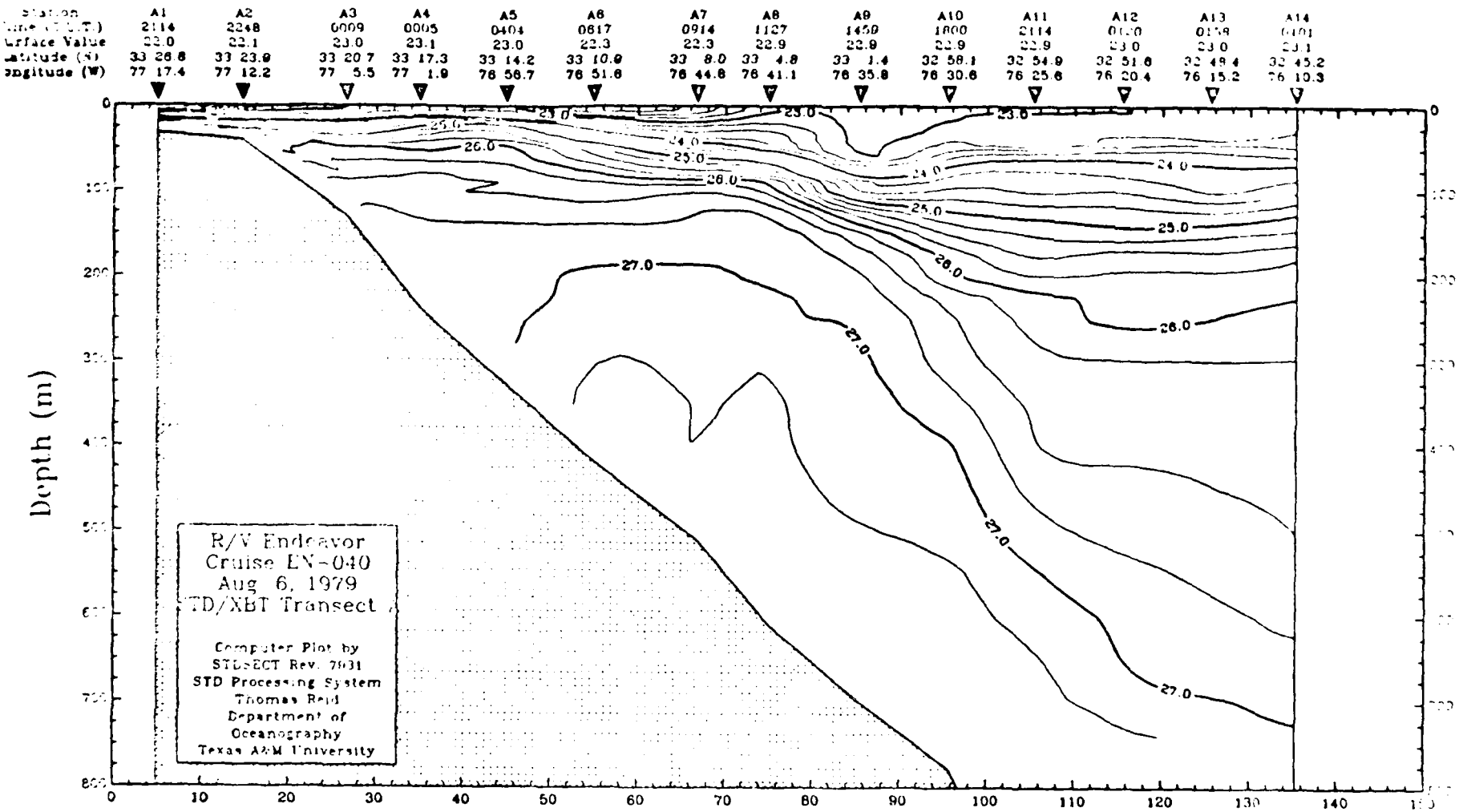
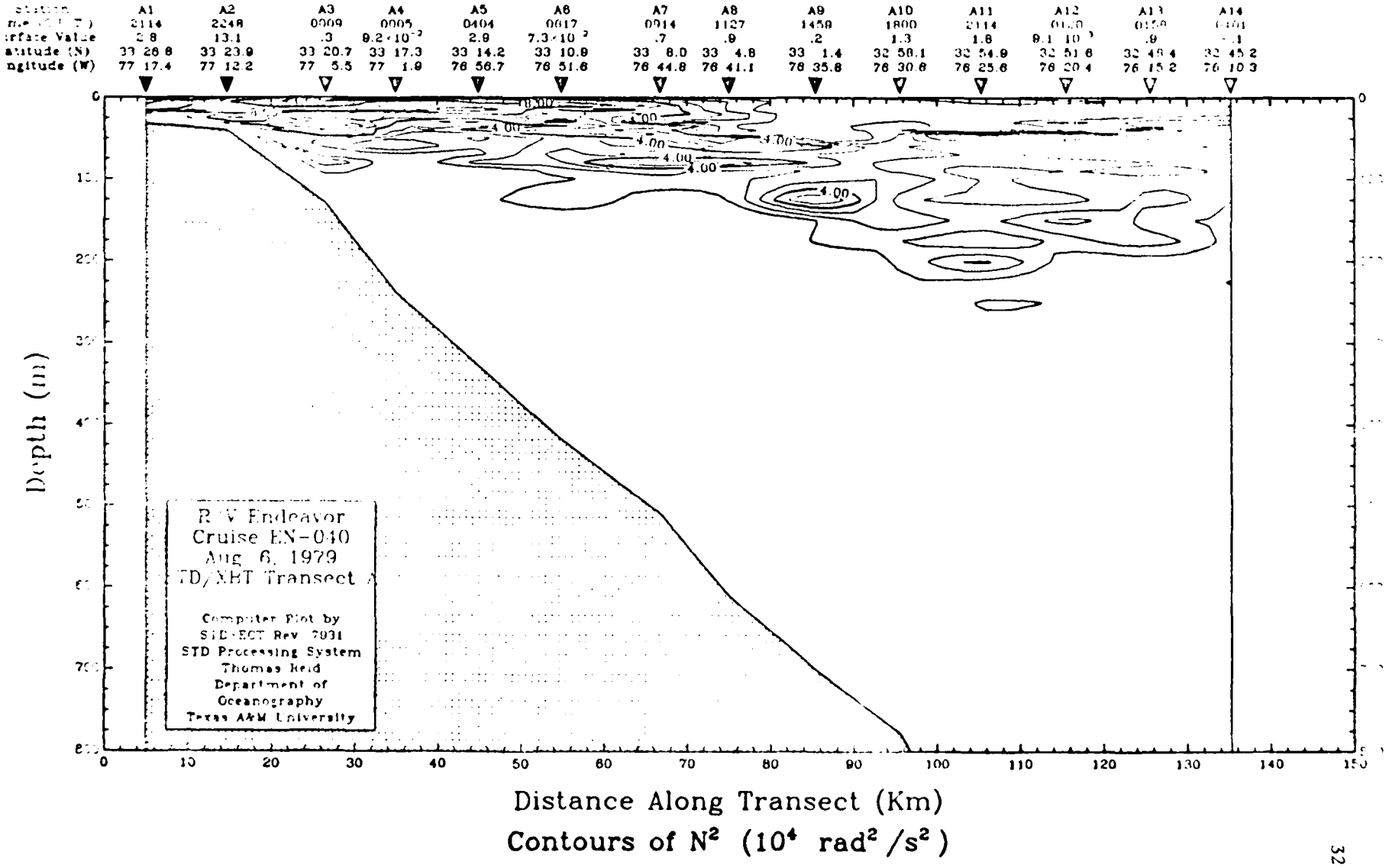


Figure 7. STD/XBT section contours of temperature, salinity and derived sigma-t and N^2 fields for Transect A. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units, and 0.5×10^{-4} rad^2 s^{-2}, respectively. This figure is continued on the next 3 pages.


A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
Latitude (N)
33 25.8
33 21.9
33 20.7
33 17.3
33 14.2
33 10.9
33 8.0
33 4.8
33 1.4
32 58.1
32 54.9
32 51.6
32 48.4
32 45.2
Longitude (W)
77 17.4
77 12.2
77 5.5
77 1.9
76 56.7
76 51.8
76 44.8
76 41.1
76 35.8
76 30.8
76 25.6
76 20.4
76 15.2
76 10.3
Surface Value
34.8
35.3
35.3
35.1
35.8
35.2
35.3
36.0
36.2
36.3
35.4
36.0
36.0
36.0
36.0
36.5
35.5
35.5
36.0
36.5
35.5
35.0
35.5
35.0
R/V Endeavor
Cruise EN-040
Aug 6, 1979
CTD/XBT Transect
Computer Plot by
STD-SCT Rev. 7801
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Depth (m)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
Distance Along Transect (Km)
Contours of Salinity (‰)


Station
Time (G.M.T.)
Surface Value
Latitude (N)
Longitude (W)
A1 2114 23.0 33 26.8 77 17.4
A2 2248 23.1 33 23.9 77 12.2
A3 0009 23.0 33 20.7 77 5.5
A4 0005 23.1 33 17.3 77 1.9
A5 0404 23.0 33 14.2 76 56.7
A6 0817 22.3 33 10.9 76 51.6
A7 0914 22.3 33 8.0 76 44.8
A8 1127 22.9 33 4.8 76 41.1
A9 1450 22.9 33 1.4 76 35.8
A10 1800 22.9 32 58.1 76 30.6
A11 2114 22.9 32 54.9 76 25.6
A12 0130 23.0 32 51.6 76 20.4
A13 0158 23.0 32 48.4 76 15.2
A14 0401 23.1 32 45.2 76 10.3
R/V Endeavor
Cruise EN-040
Aug. 6, 1979
CTD/XBT Transect
Computer Plot by
STDSECT Rev. 7901
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Depth (m)
Distance Along Transect (Km)
Contours of σ_t (g/l)


A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14
2114 2248 0009 0005 0404 0617 0914 1127 1458 1800 2114 0120 0150 0351
2.8 13.1 .3 9.2×10⁻² 2.8 7.3×10⁻² .7 .9 .2 1.3 1.8 8.1 10⁻³ .9 .1
33 28.8 33 23.9 33 20.7 33 17.3 33 14.2 33 10.8 33 8.0 33 4.8 33 1.4 32 58.1 32 54.9 32 51.6 32 48.4 32 45.2
77 17.4 77 12.2 77 5.5 77 1.9 76 56.7 76 51.6 76 44.8 76 41.1 76 35.8 76 30.8 76 25.6 76 20.4 76 15.2 76 10.3
4.00
Depth (m)
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
R V Endeavor
Cruise EN-040
Aug 6, 1979
TD/XBT Transect A
Computer Plot by
SIO-EOT Rev 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Distance Along Transect (Km)
Contours of N² (10⁴ rad²/s²)

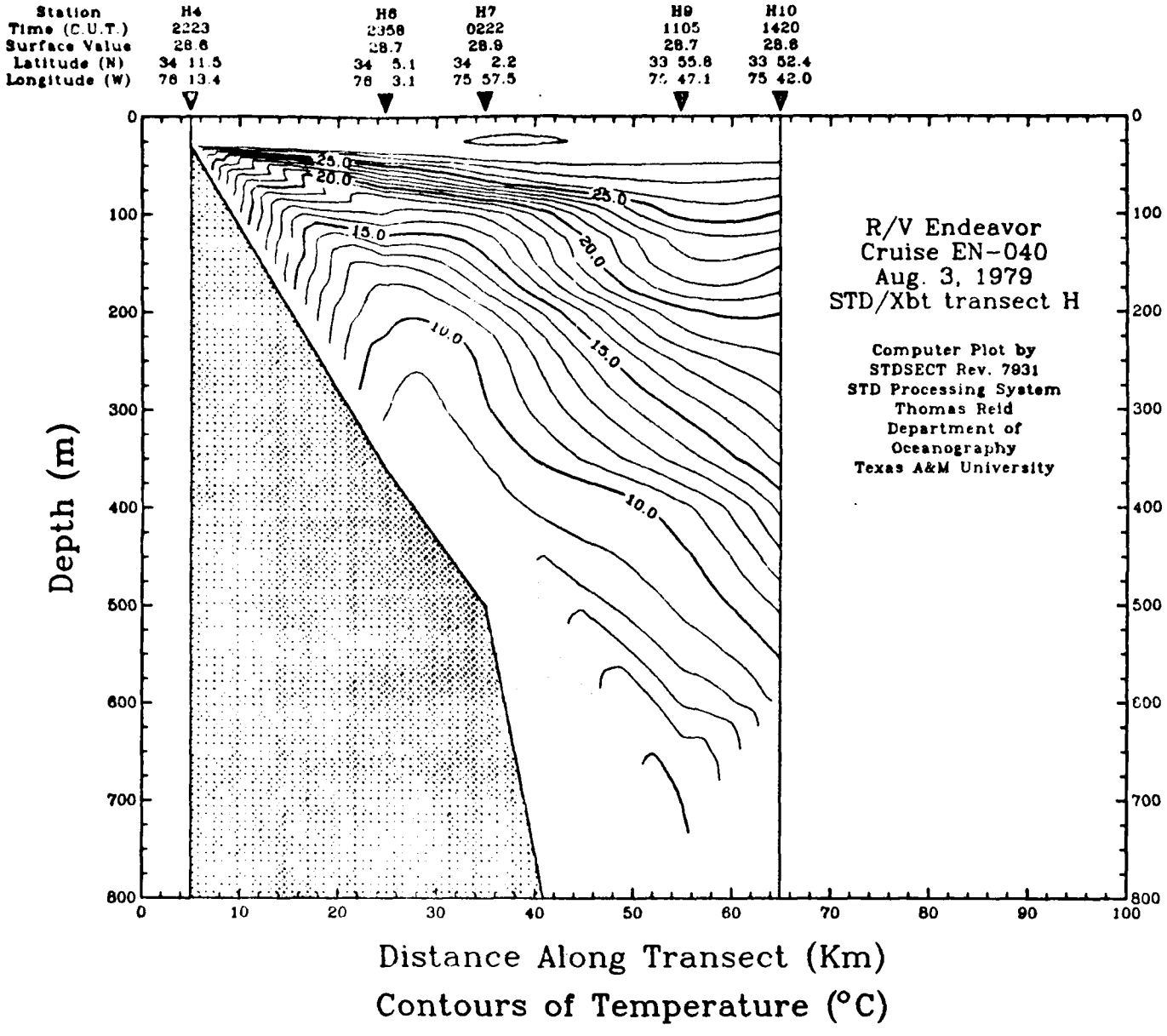
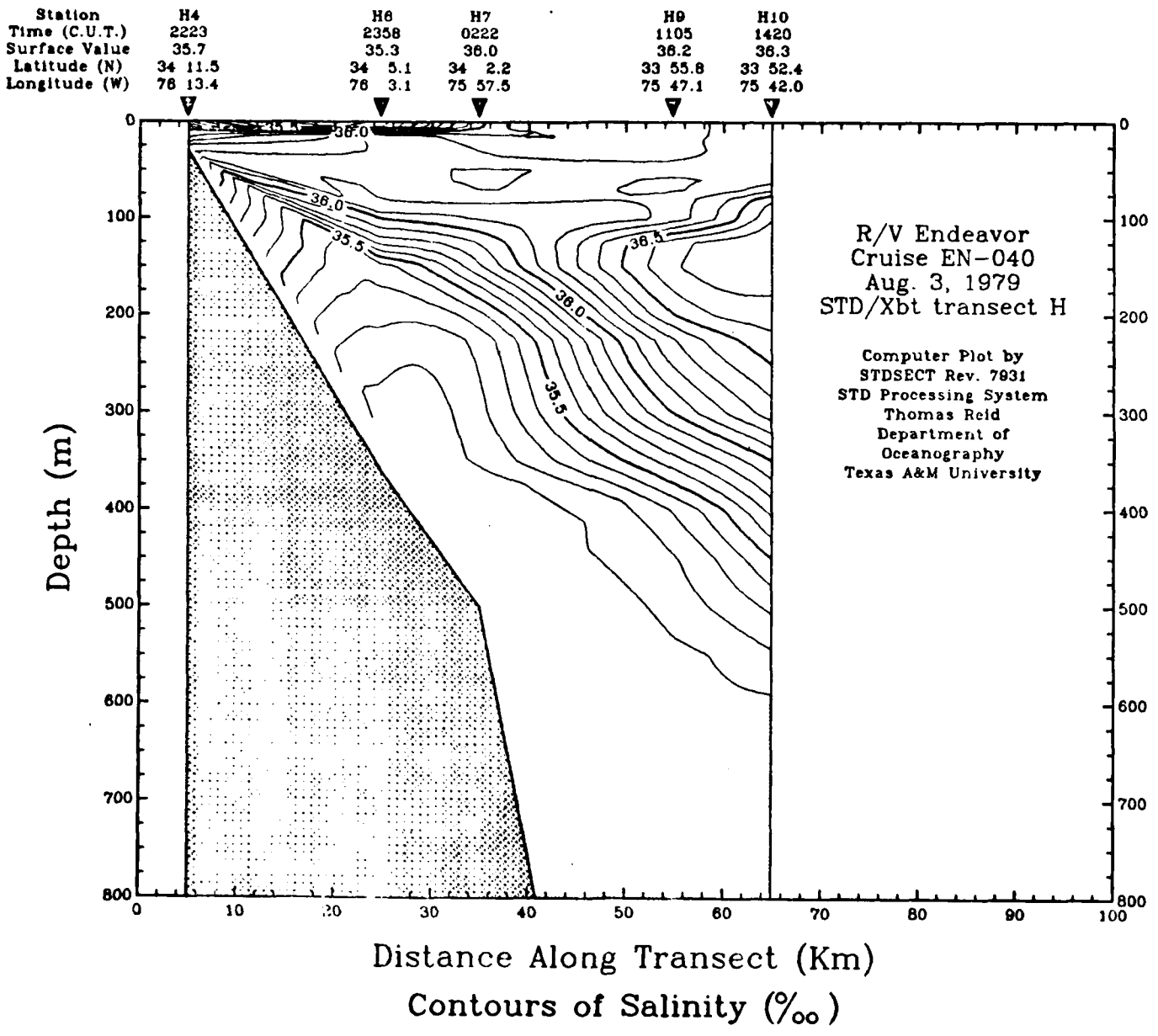
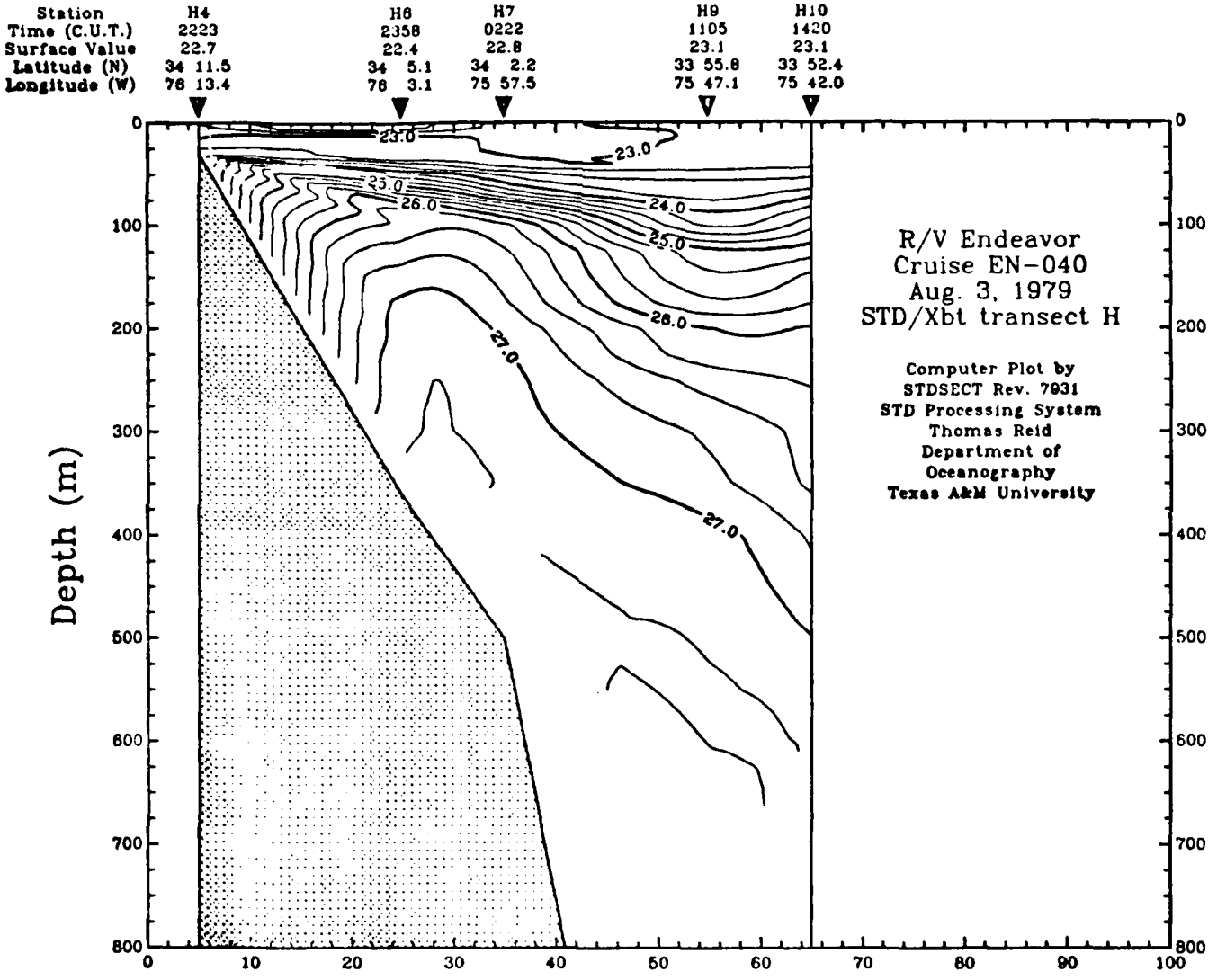
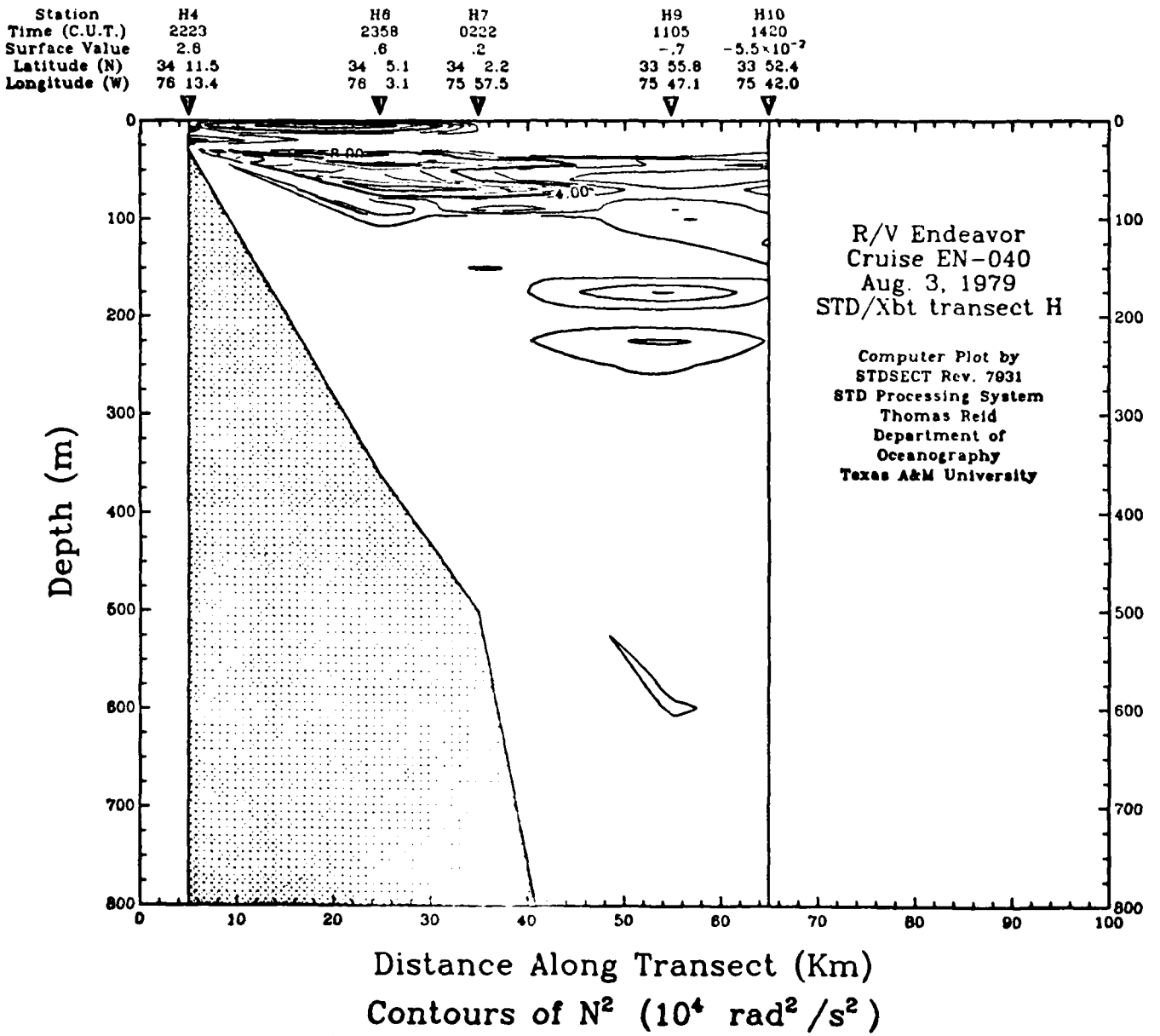


Figure 8. STD/XBT section contours of temperature, salinity and derived sigma-t and N^2 fields for Transect H. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units, and 0.5×10^{-4} rad^2 s^{-2}, respectively. This figure is continued on the next 3 pages.


Station H4 H6 H7 H9 H10
Time (C.U.T.) 2223 2358 0222 1105 1420
Surface Value 35.7 35.3 36.0 36.2 36.3
Latitude (N) 34 11.5 34 5.1 34 2.2 33 55.8 33 52.4
Longitude (W) 76 13.4 76 3.1 75 57.5 75 47.1 75 42.0
R/V Endeavor
Cruise EN-040
Aug. 3, 1979
STD/Xbt transect H
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Depth (m)
Distance Along Transect (Km)
Contours of Salinity (‰)


Station H4 H6 H7 H9 H10
Time (C.U.T.) 2223 2358 0222 1105 1420
Surface Value 22.7 22.4 22.8 23.1 23.1
Latitude (N) 34 11.5 34 5.1 34 2.2 33 55.8 33 52.4
Longitude (W) 76 13.4 76 3.1 75 57.5 75 47.1 75 42.0
23.0
24.0
25.0
26.0
27.0
R/V Endeavor
Cruise EN-040
Aug. 3, 1979
STD/Xbt transect H
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Depth (m)
0 100 200 300 400 500 600 700 800
0 10 20 30 40 50 60 70 80 90 100
Distance Along Transect (Km)
Contours of σ_t (g/l)


Station H4 H6 H7 H9 H10
Time (C.U.T.) 2223 2358 0222 1105 1420
Surface Value 2.8 .6 .2 -.7 -5.5×10⁻²
Latitude (N) 34 11.5 34 5.1 34 2.2 33 55.8 33 52.4
Longitude (W) 76 13.4 76 3.1 75 57.5 75 47.1 75 42.0
8.00
4.00
R/V Endeavor
Cruise EN-040
Aug. 3, 1979
STD/Xbt transect H
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Depth (m)
0 100 200 300 400 500 600 700 800
0 10 20 30 40 50 60 70 80 90 100
Distance Along Transect (Km)
Contours of N² (10⁴ rad²/s²)

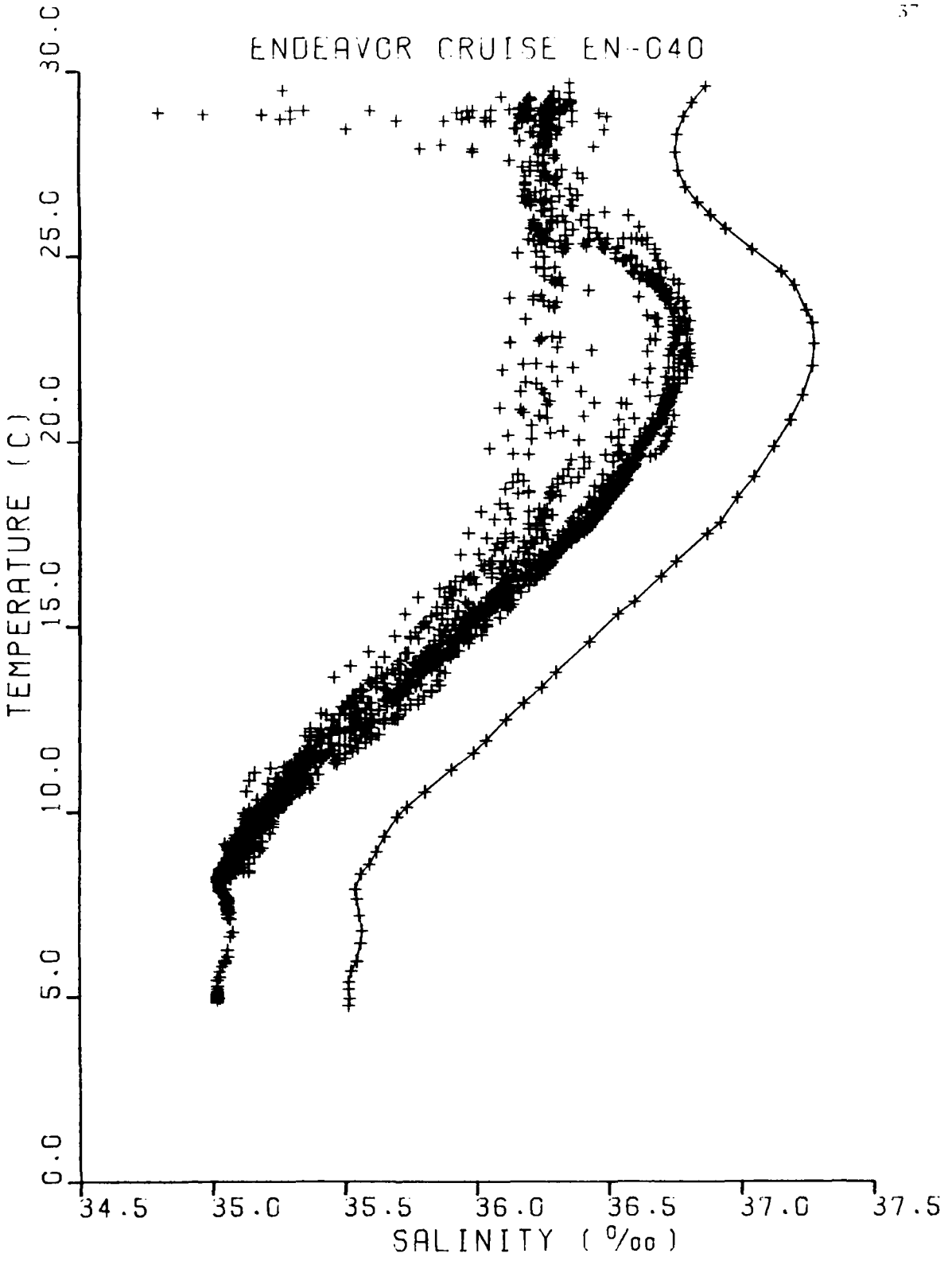


Figure 9. T-S diagram showing all STD/XBT points for EN-040 (crosses) and the resulting T-S correlation line fit by spline interpolation, which has been displaced to the right by 0.5‰. The stations used to generate the T-S correlation are listed in section 2.3.

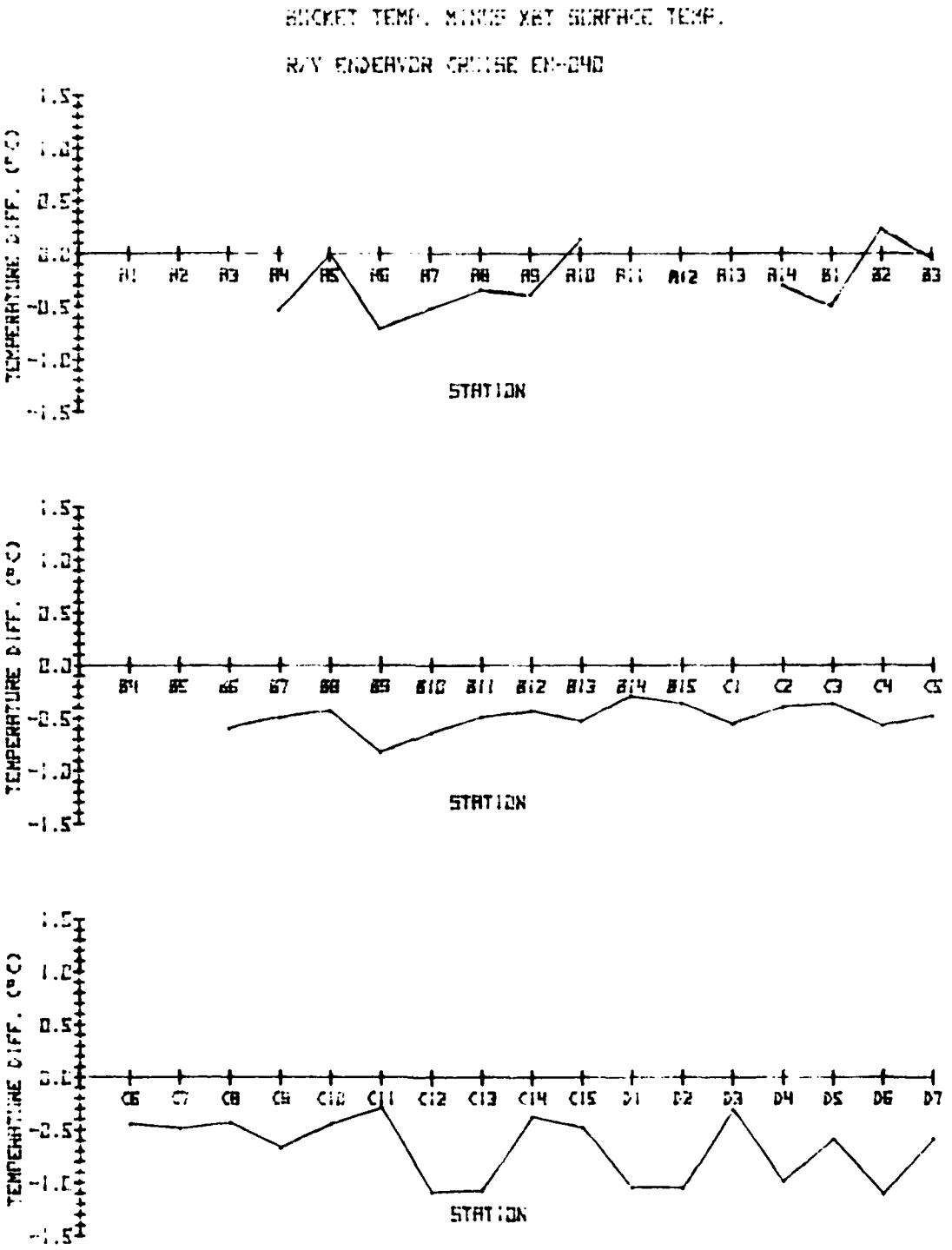
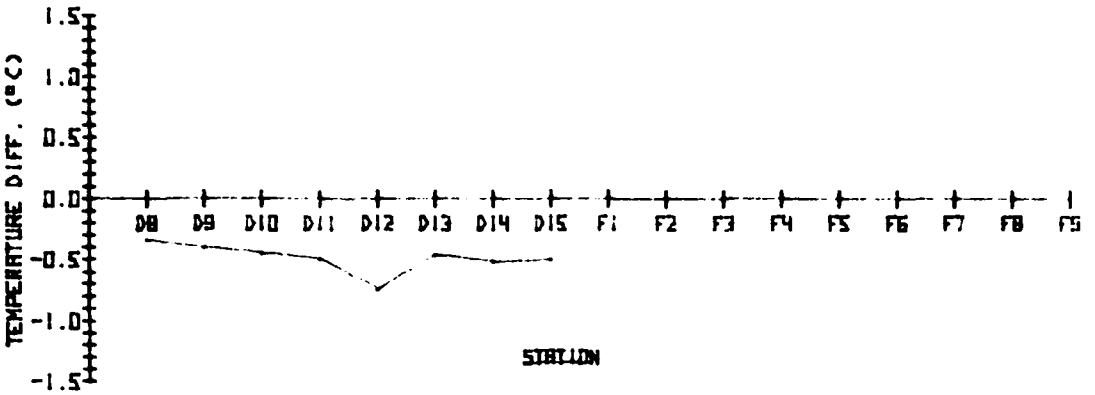
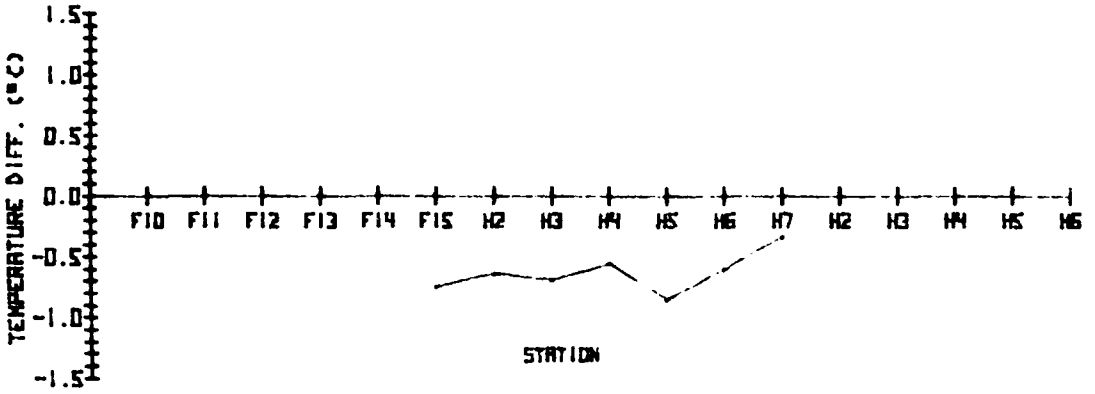


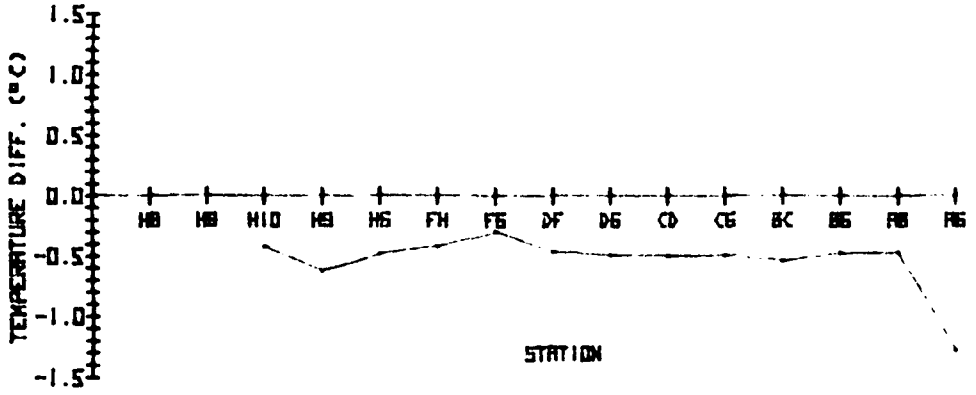
Figure 10. Comparison of surface bucket and XBT surface temperatures for EN-040. This figure is continued on the next page.

BUCKET TEMP. MINUS XBT SURFACE TEMP.

R/V ENDEAVOR CRUISE EN-04C







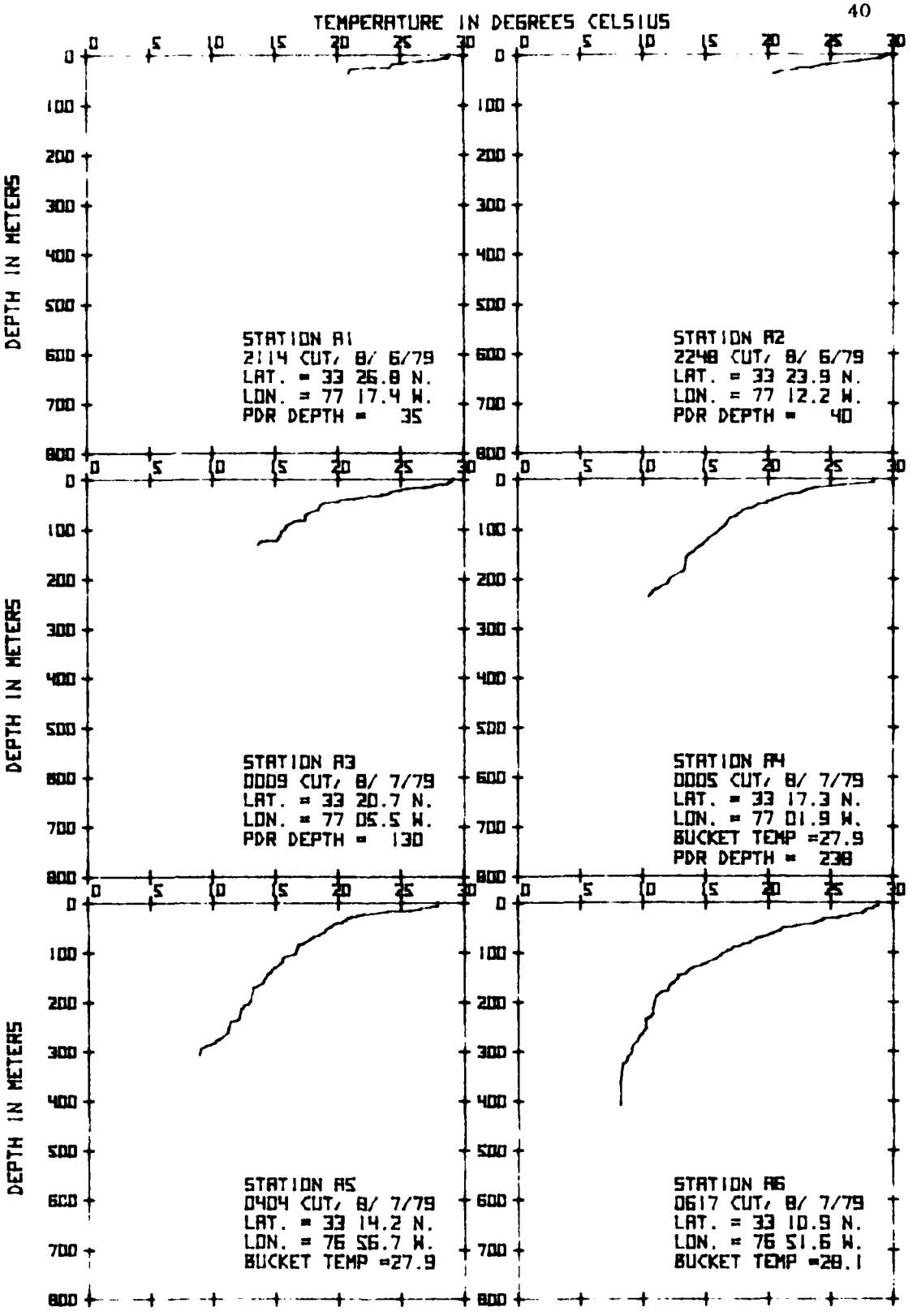
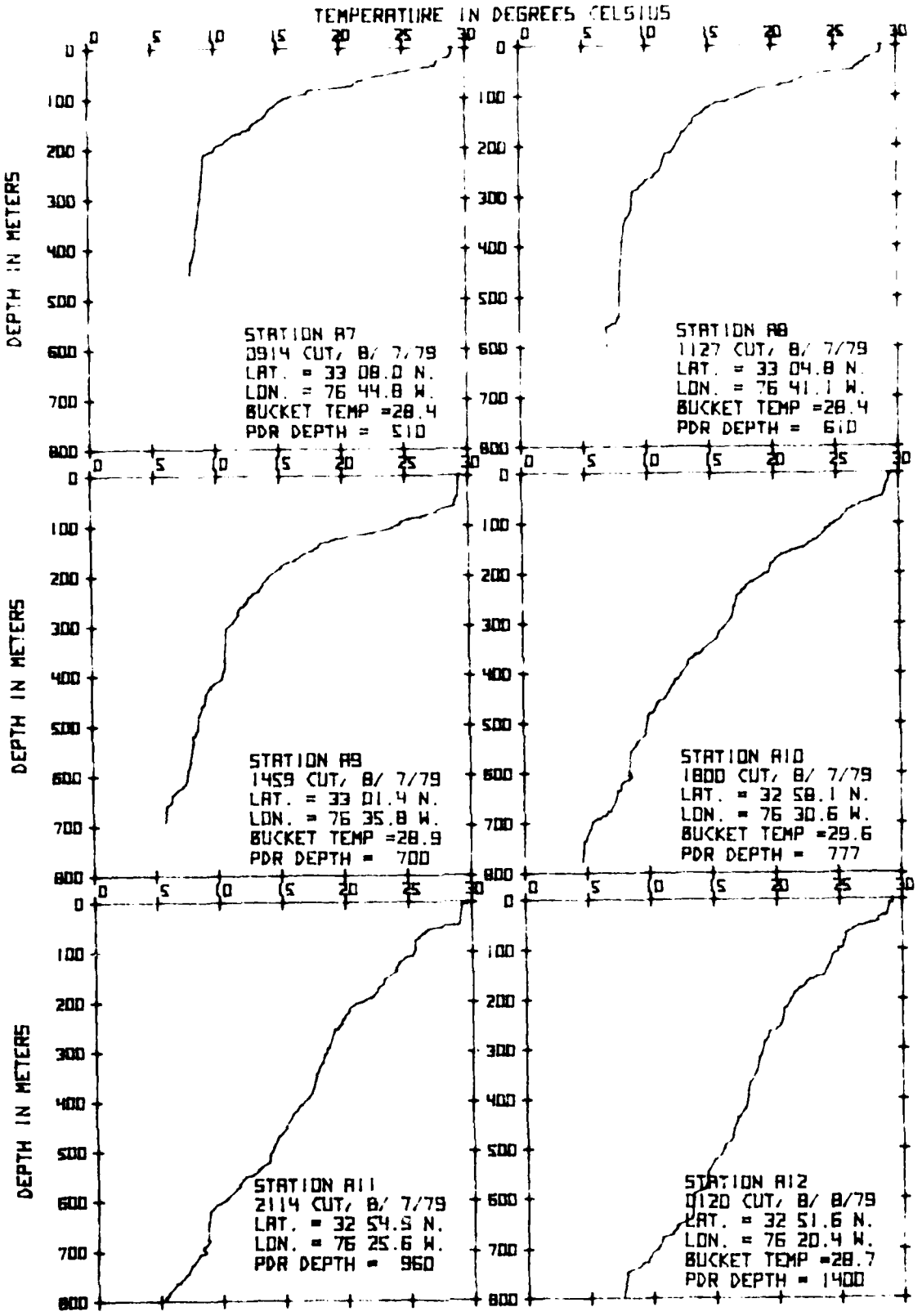
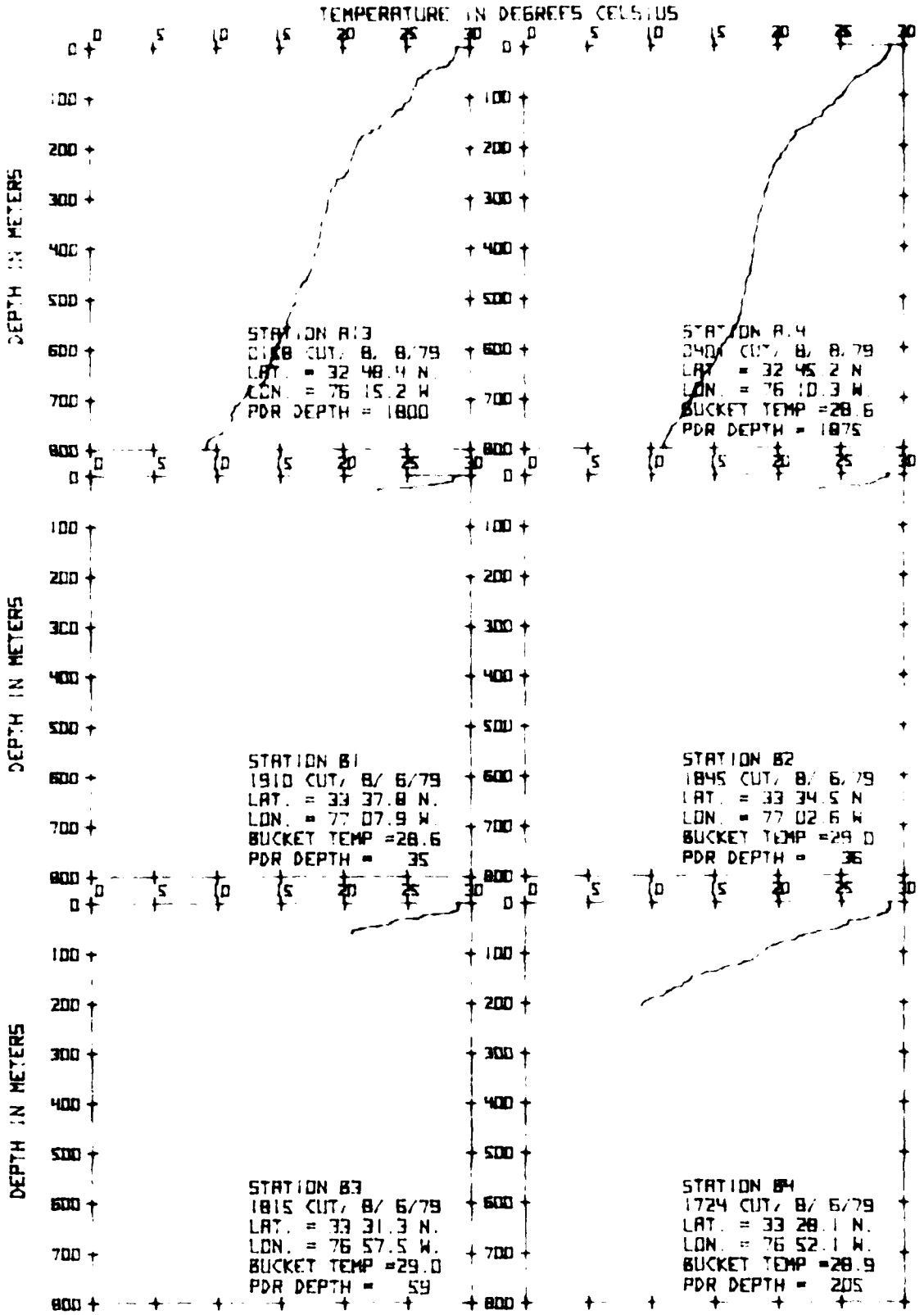
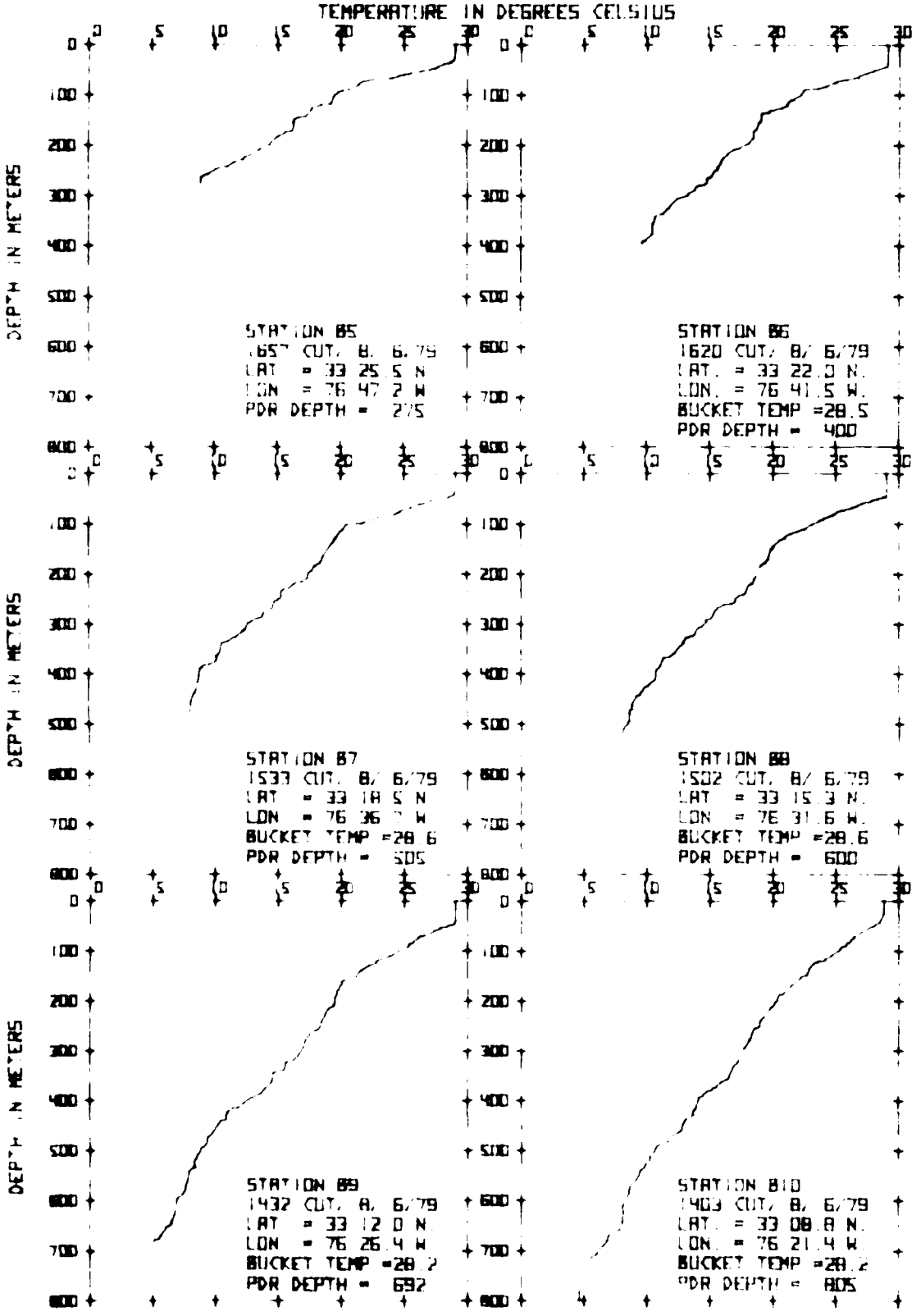
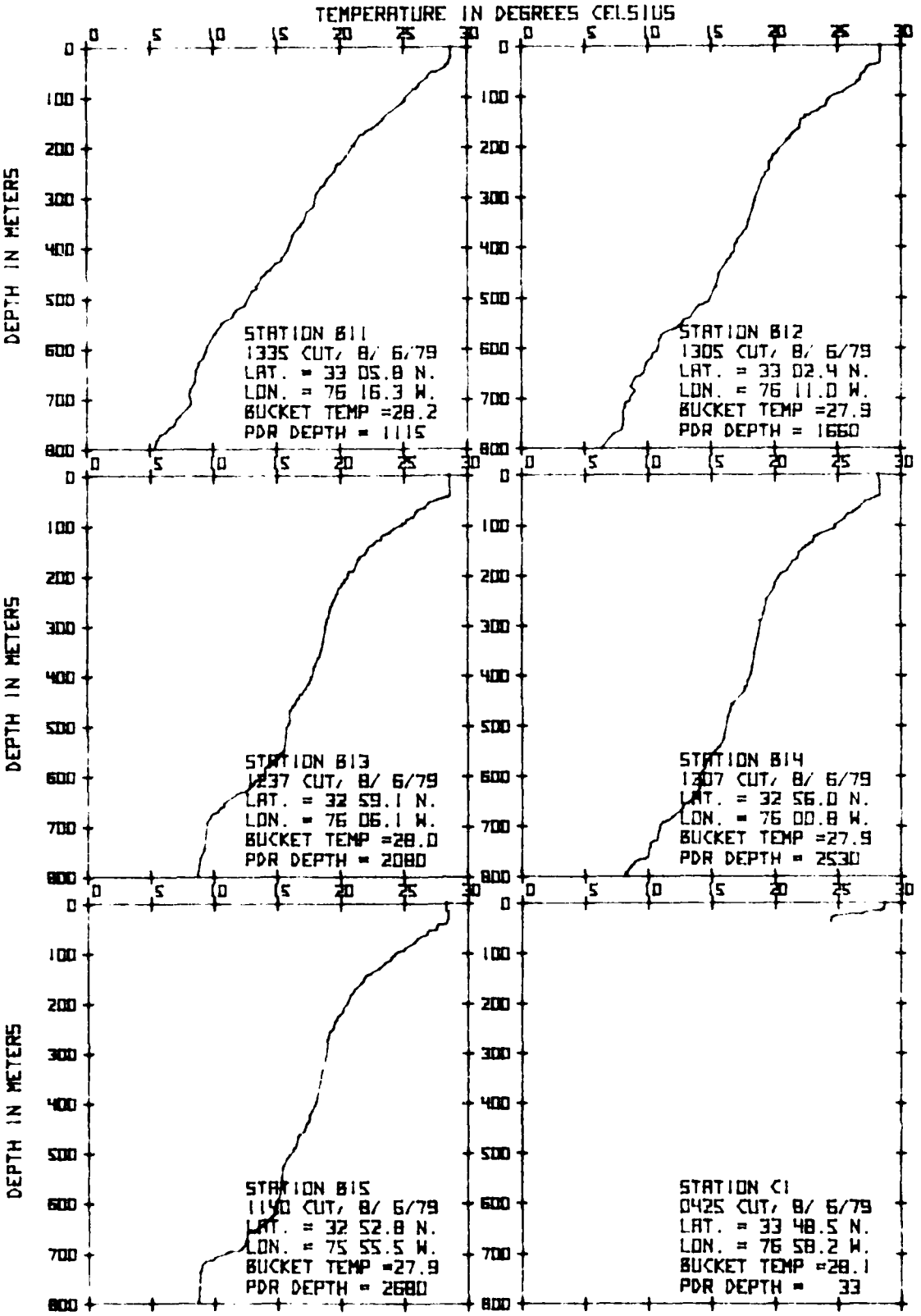


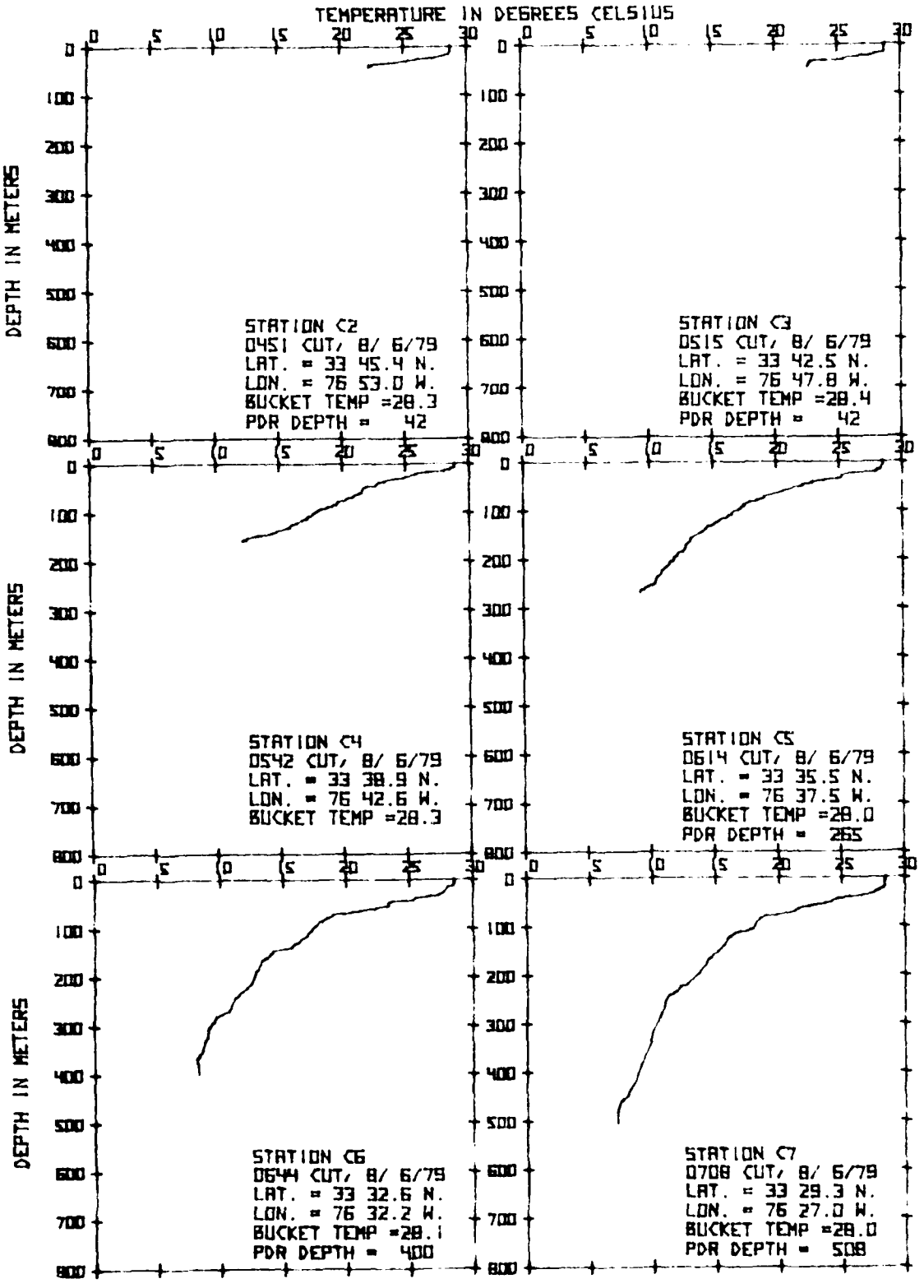
Figure 11. Individual XBT station temperature profiles, caption Station locations are shown in Figure 2. The profiles have not been forced to agree with surface bucket temperatures. This figure is continued on the next 16 pages.

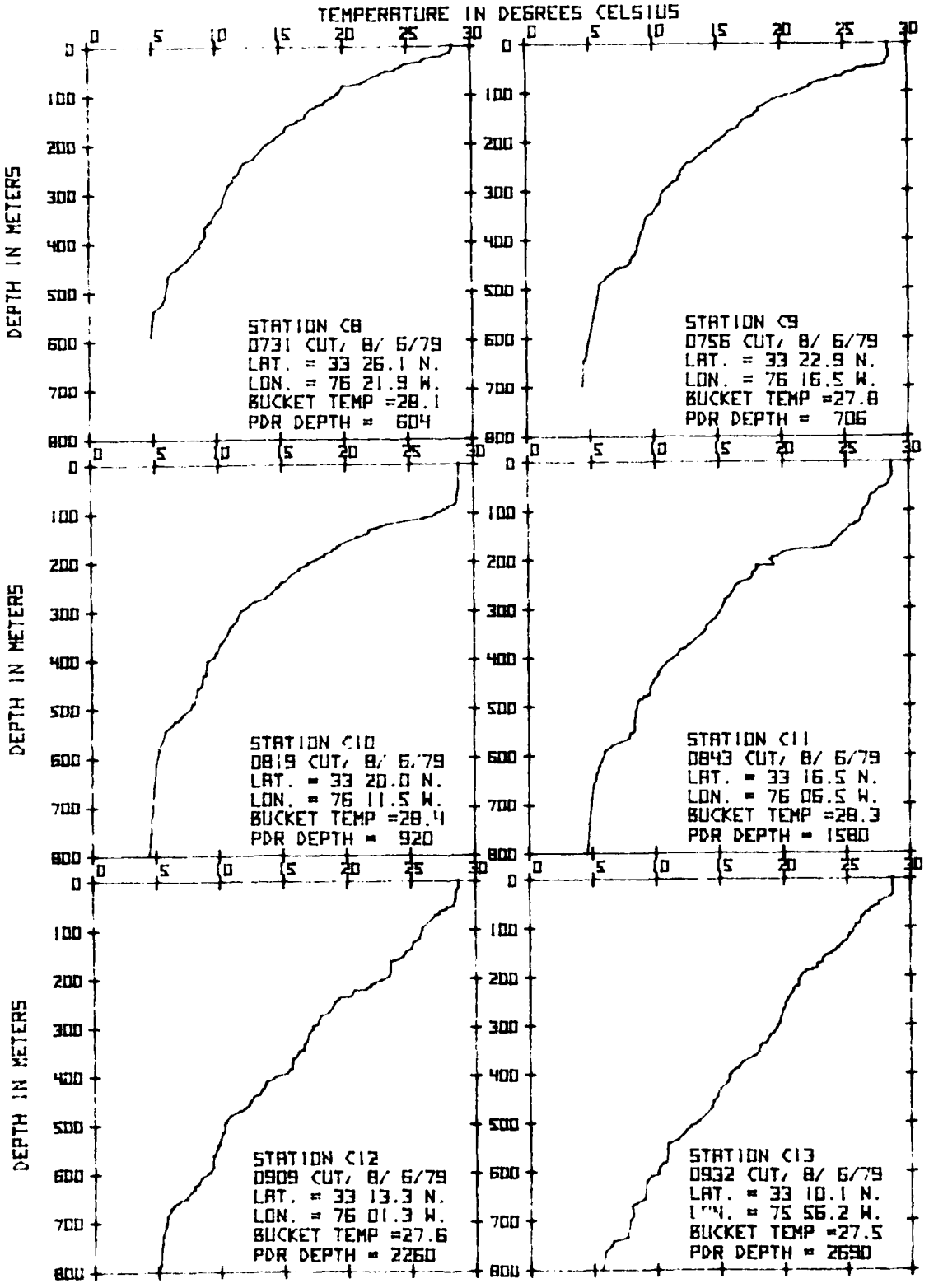

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION A7
0914 CUT, 8/ 7/79
LAT. = 33 08.0 N.
LON. = 76 44.8 W.
BUCKET TEMP =28.4
PDR DEPTH = 510
STATION A8
1127 CUT, 8/ 7/79
LAT. = 33 04.8 N.
LON. = 76 41.1 W.
BUCKET TEMP =28.4
PDR DEPTH = 610
STATION A9
1459 CUT, 8/ 7/79
LAT. = 33 01.4 N.
LON. = 76 35.8 W.
BUCKET TEMP =28.9
PDR DEPTH = 700
STATION A10
1800 CUT, 8/ 7/79
LAT. = 32 58.1 N.
LON. = 76 30.6 W.
BUCKET TEMP =29.6
PDR DEPTH = 777
STATION A11
2114 CUT, 8/ 7/79
LAT. = 32 54.9 N.
LON. = 76 25.6 W.
PDR DEPTH = 960
STATION A12
0120 CUT, 8/ 8/79
LAT. = 32 51.6 N.
LON. = 76 20.4 W.
BUCKET TEMP =28.7
PDR DEPTH = 1400

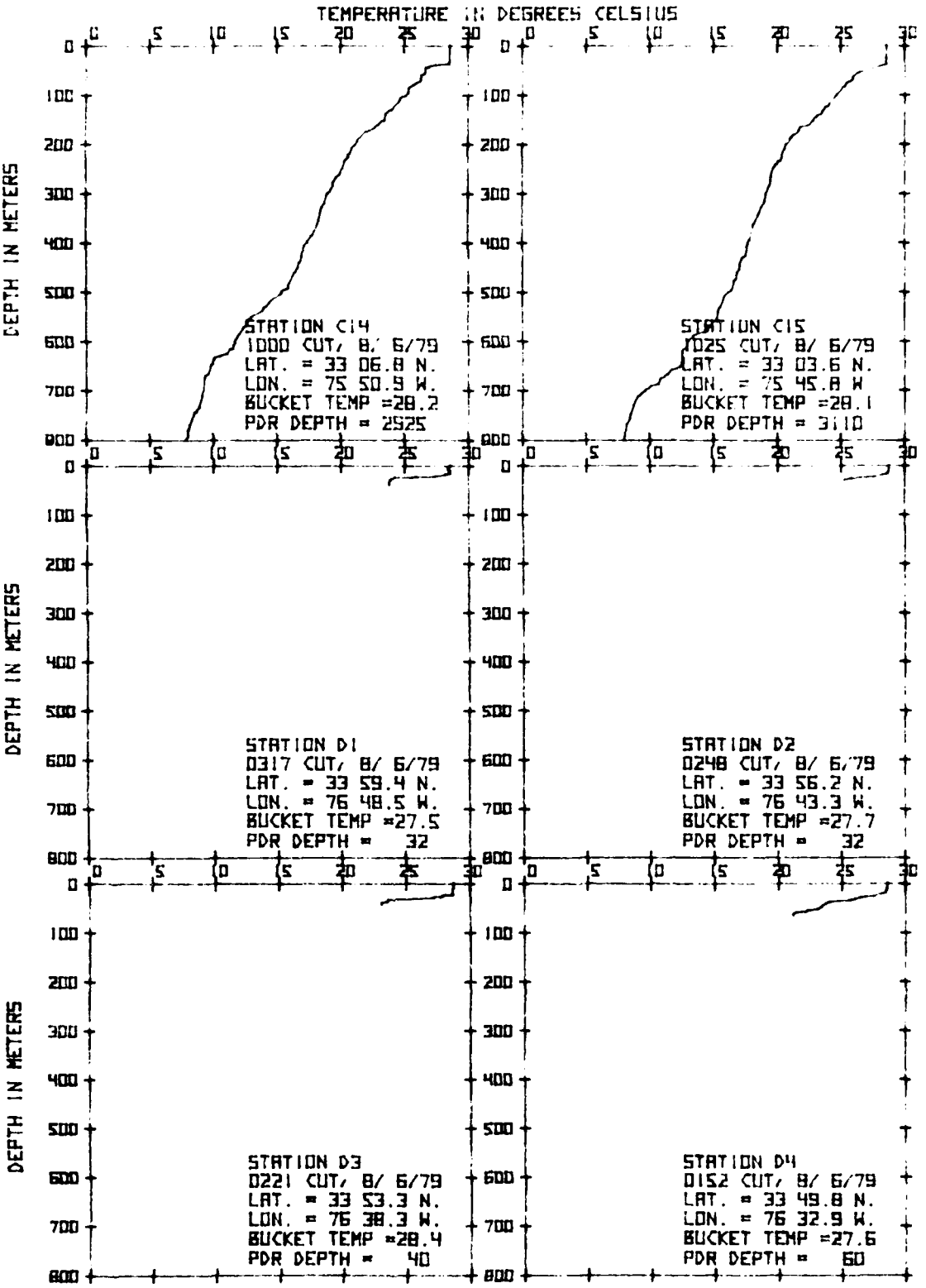

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION A13
STATION A4
STATION B1
1910 CUT, 8/ 6/79
LAT. = 33 37.8 N.
LON. = 77 07.9 W.
BUCKET TEMP =28.6
PDR DEPTH = 35
STATION B2
1845 CUT, 8/ 6/79
LAT. = 33 34.5 N
LON. = 77 02.6 W
BUCKET TEMP =29.0
PDR DEPTH = 36
STATION B3
1815 CUT, 8/ 6/79
LAT. = 33 31.3 N.
LON. = 76 57.5 W.
BUCKET TEMP =29.0
PDR DEPTH = 59
STATION B4
1724 CUT, 8/ 6/79
LAT. = 33 28.1 N.
LON. = 76 52.1 W.
BUCKET TEMP =28.9
PDR DEPTH = 205

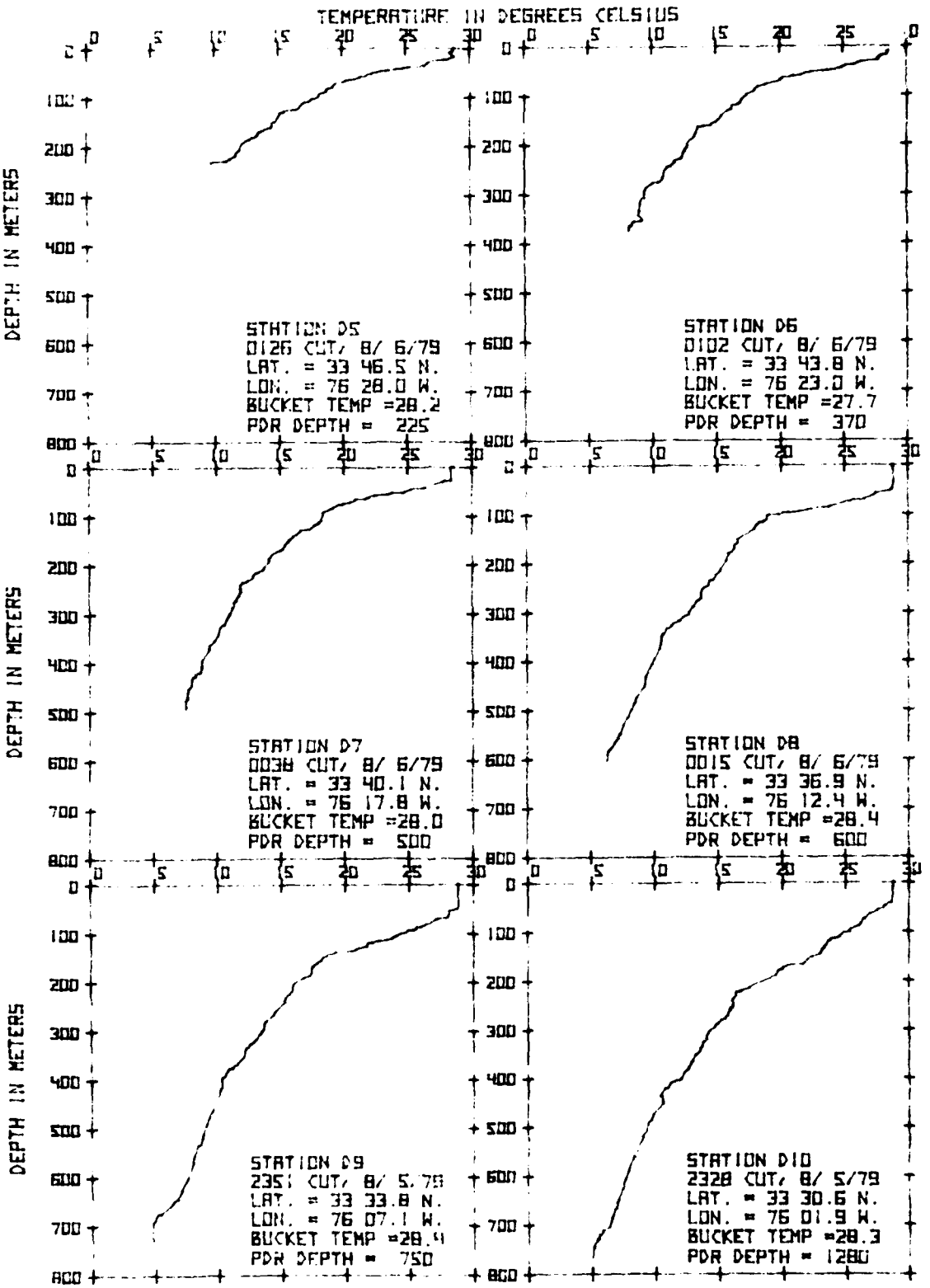

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION 85
1657 CUT, 8, 6,79
LAT = 33 25.5 N
LON = 76 47.2 W
PDR DEPTH = 275
STATION 86
1620 CUT, 8, 6/79
LAT. = 33 22.0 N.
LON. = 76 41.5 W.
BUCKET TEMP =28.5
PDR DEPTH = 400
STATION 87
1533 CUT, 8, 6/79
LAT = 33 18.5 N
LON = 76 36.7 W
BUCKET TEMP =28.6
PDR DEPTH = 505
STATION 88
1502 CUT, 8, 6/79
LAT = 33 15.3 N.
LON = 76 31.6 W.
BUCKET TEMP =28.6
PDR DEPTH = 600
STATION 89
1432 CUT, 8, 6/79
LAT = 33 12.0 N.
LON = 76 26.4 W.
BUCKET TEMP =28.2
PDR DEPTH = 692
STATION 810
1403 CUT, 8, 6/79
LAT. = 33 08.8 N.
LON. = 76 21.4 W.
BUCKET TEMP =28.2
PDR DEPTH = 805

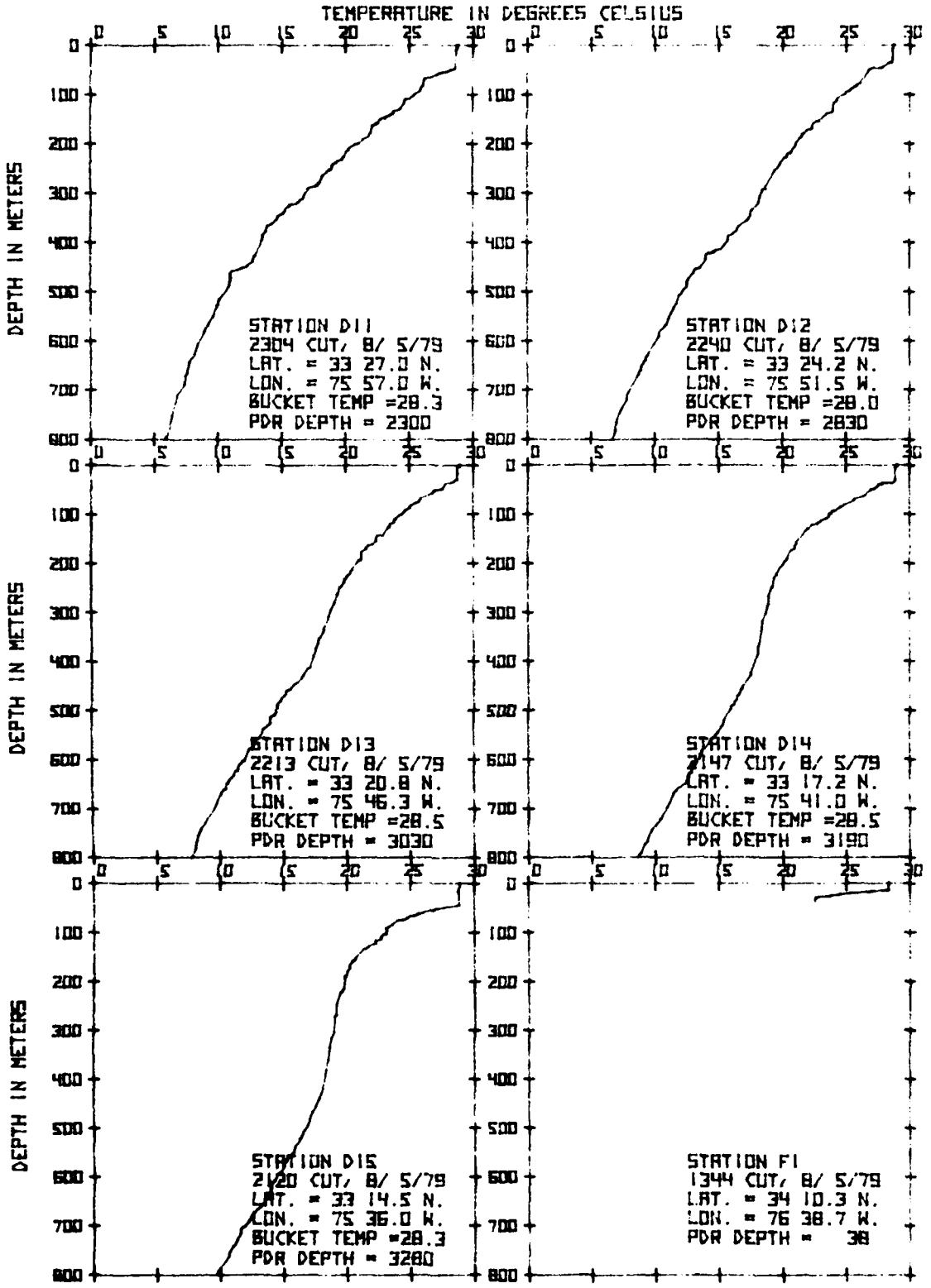

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION B11
1335 CUT/ 8/ 6/79
LAT. = 33 05.8 N.
LON. = 76 16.3 W.
BUCKET TEMP =28.2
PDR DEPTH = 1115
STATION B12
1305 CUT/ 8/ 6/79
LAT. = 33 02.4 N.
LON. = 76 11.0 W.
BUCKET TEMP =27.9
PDR DEPTH = 1660
STATION B13
1237 CUT/ 8/ 6/79
LAT. = 32 59.1 N.
LON. = 76 06.1 W.
BUCKET TEMP =28.0
PDR DEPTH = 2080
STATION B14
1207 CUT/ 8/ 6/79
LAT. = 32 56.0 N.
LON. = 76 00.8 W.
BUCKET TEMP =27.9
PDR DEPTH = 2530
STATION B15
1140 CUT/ 8/ 6/79
LAT. = 32 52.8 N.
LON. = 75 55.5 W.
BUCKET TEMP =27.9
PDR DEPTH = 2680
STATION C1
0425 CUT/ 8/ 6/79
LAT. = 33 48.5 N.
LON. = 76 58.2 W.
BUCKET TEMP =28.1
PDR DEPTH = 33

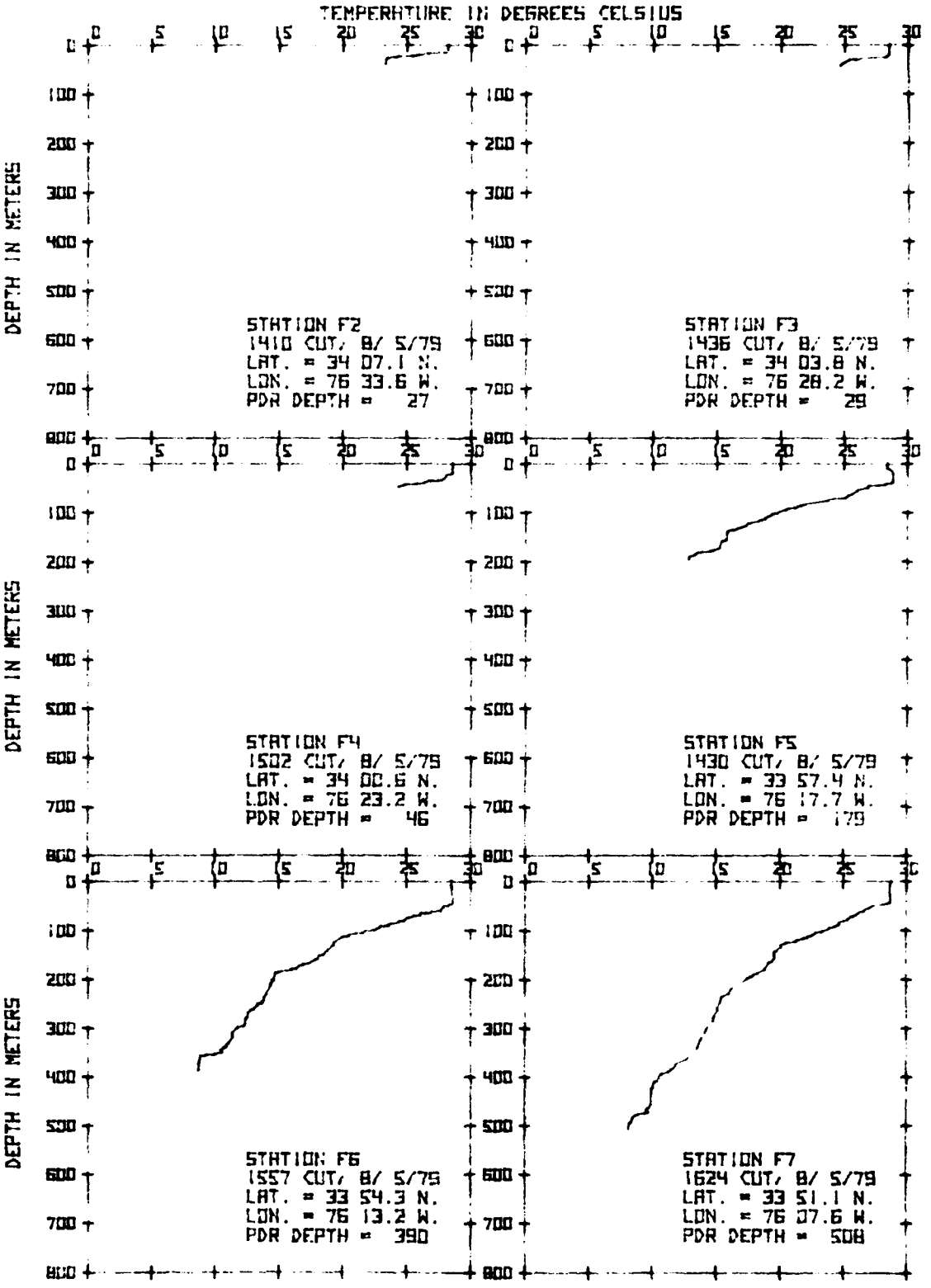

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION C2
0451 CUT, 8/ 6/79
LAT. = 33 45.4 N.
LON. = 76 53.0 W.
BUCKET TEMP =28.3
PDR DEPTH = 42
STATION C3
0515 CUT, 8/ 6/79
LAT. = 33 42.5 N.
LON. = 76 47.8 W.
BUCKET TEMP =28.4
PDR DEPTH = 42
STATION C4
0542 CUT, 8/ 6/79
LAT. = 33 38.9 N.
LON. = 76 42.6 W.
BUCKET TEMP =28.3
STATION C5
0614 CUT, 8/ 6/79
LAT. = 33 35.5 N.
LON. = 76 37.5 W.
BUCKET TEMP =28.0
PDR DEPTH = 265
STATION C6
0644 CUT, 8/ 6/79
LAT. = 33 32.6 N.
LON. = 76 32.2 W.
BUCKET TEMP =28.1
PDR DEPTH = 400
STATION C7
0708 CUT, 8/ 6/79
LAT. = 33 29.3 N.
LON. = 76 27.0 W.
BUCKET TEMP =28.0
PDR DEPTH = 508

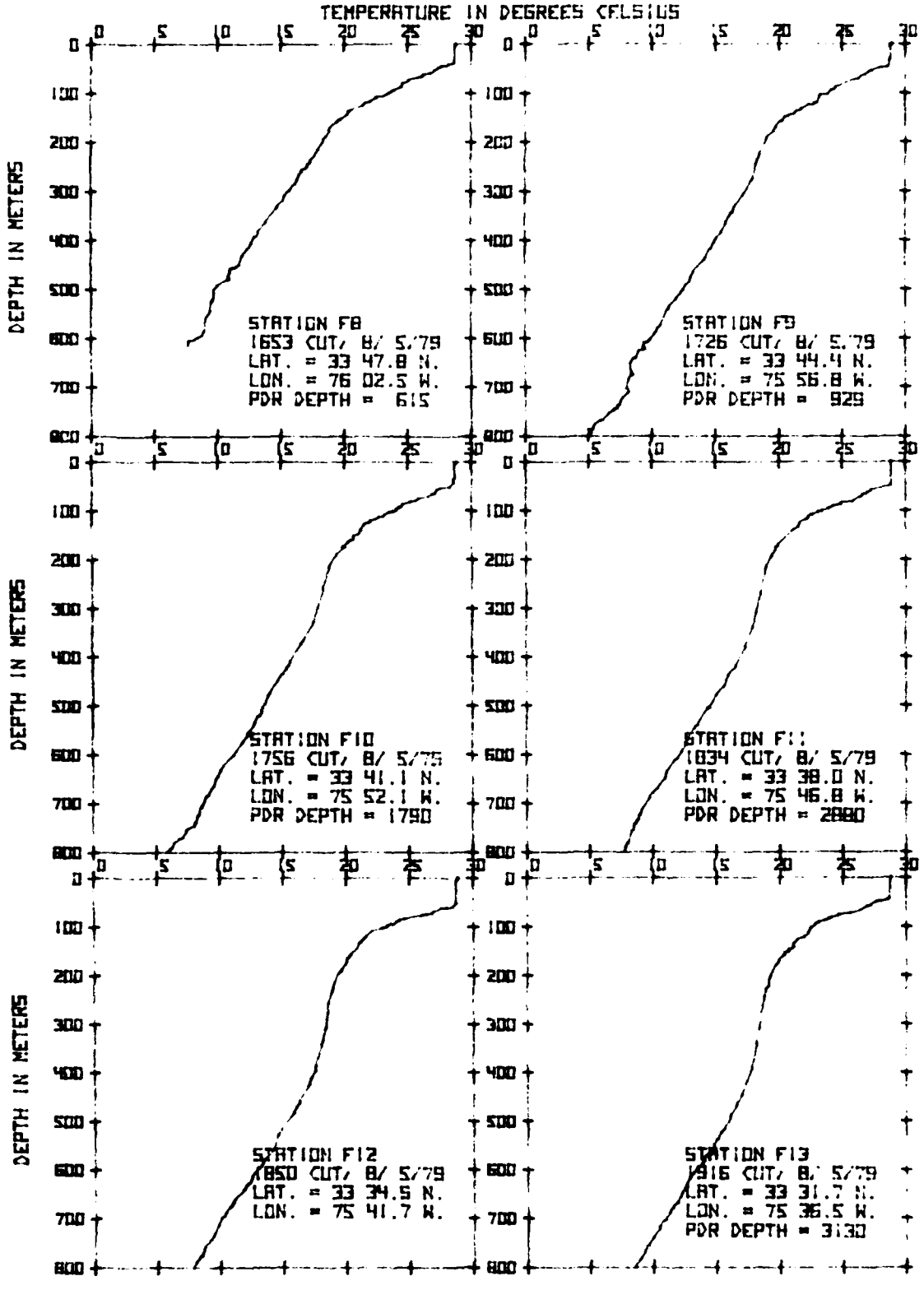

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION C8
0731 CUT, 8/ 6/79
LAT. = 33 26.1 N.
LON. = 76 21.9 W.
BUCKET TEMP =28.1
PDR DEPTH = 604
STATION C9
0756 CUT, 8/ 6/79
LAT. = 33 22.9 N.
LON. = 76 16.5 W.
BUCKET TEMP =27.8
PDR DEPTH = 706
STATION C10
0819 CUT, 8/ 6/79
LAT. = 33 20.0 N.
LON. = 76 11.5 W.
BUCKET TEMP =28.4
PDR DEPTH = 920
STATION C11
0843 CUT, 8/ 6/79
LAT. = 33 16.5 N.
LON. = 76 06.5 W.
BUCKET TEMP =28.3
PDR DEPTH = 1580
STATION C12
0909 CUT, 8/ 6/79
LAT. = 33 13.3 N.
LON. = 76 01.3 W.
BUCKET TEMP =27.6
PDR DEPTH = 2260
STATION C13
0932 CUT, 8/ 6/79
LAT. = 33 10.1 N.
LON. = 75 56.2 W.
BUCKET TEMP =27.5
PDR DEPTH = 2690

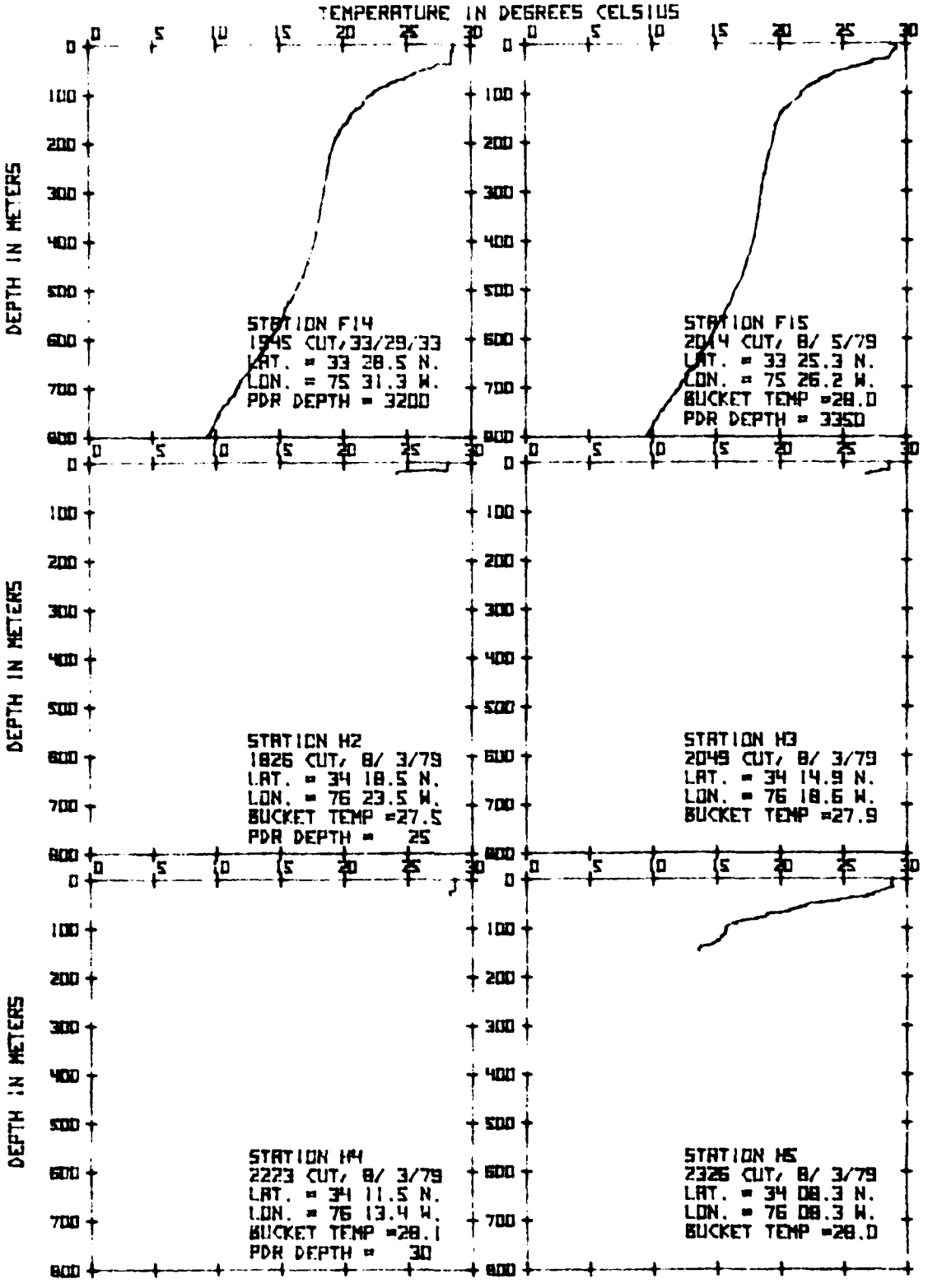

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION C14
1000 CUT, 8/ 6/79
LAT. = 33 06.8 N.
LON. = 75 50.9 W.
BUCKET TEMP =28.2
PDR DEPTH = 2525
STATION C15
1025 CUT, 8/ 6/79
LAT. = 33 03.6 N.
LON. = 75 45.8 W
BUCKET TEMP =28.1
PDR DEPTH = 3110
STATION D1
0317 CUT, 8/ 6/79
LAT. = 33 59.4 N.
LON. = 76 48.5 W.
BUCKET TEMP =27.5
PDR DEPTH = 32
STATION D2
0248 CUT, 8/ 6/79
LAT. = 33 56.2 N.
LON. = 76 43.3 W.
BUCKET TEMP =27.7
PDR DEPTH = 32
STATION D3
0221 CUT, 8/ 6/79
LAT. = 33 53.3 N.
LON. = 76 38.3 W.
BUCKET TEMP =28.4
PDR DEPTH = 40
STATION D4
0152 CUT, 8/ 6/79
LAT. = 33 49.8 N.
LON. = 76 32.9 W.
BUCKET TEMP =27.6
PDR DEPTH = 60

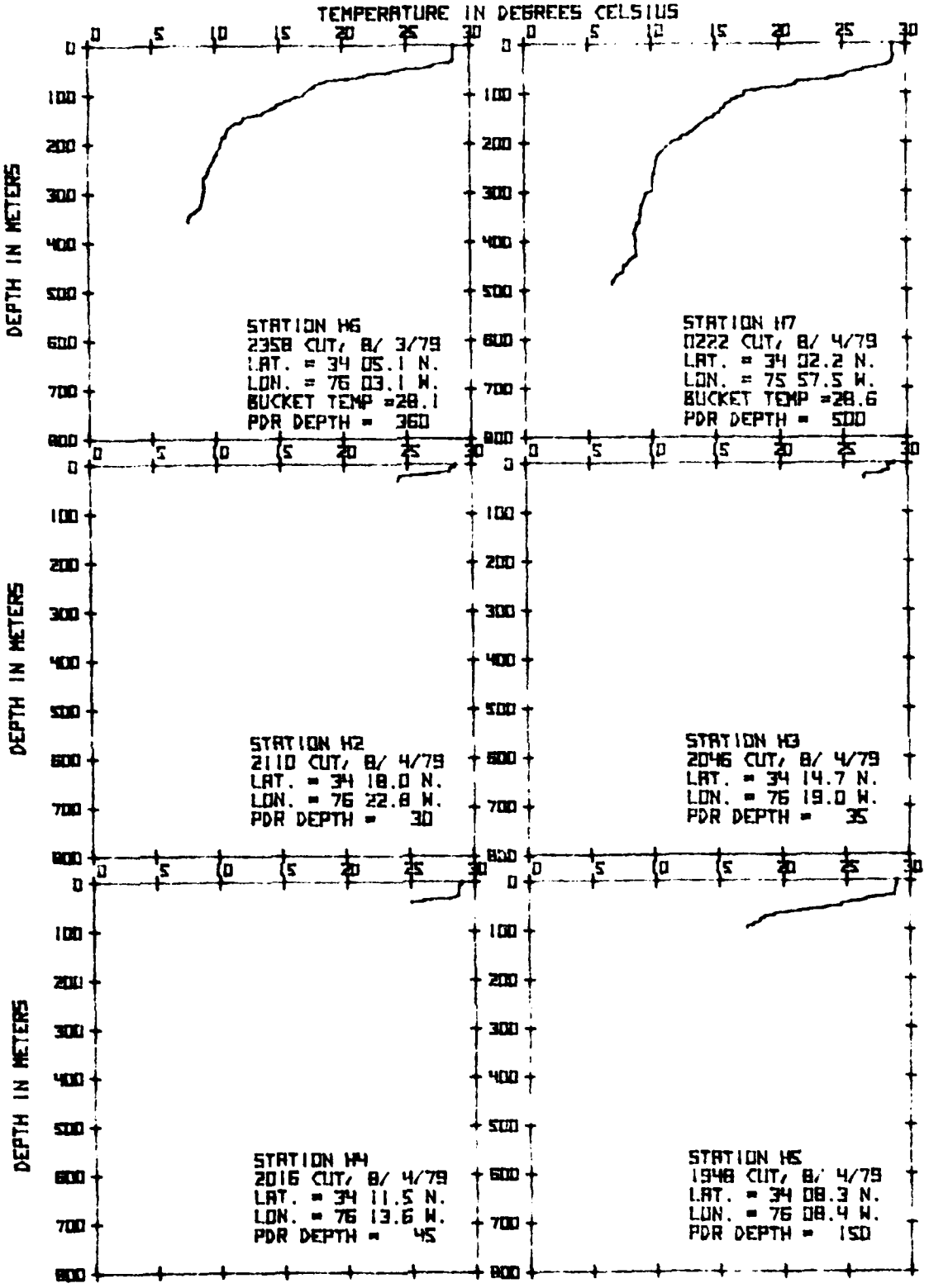

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION D5
0126 CUT, 8/ 6/79
LAT. = 33 46.5 N.
LON. = 76 28.0 W.
BUCKET TEMP =28.2
PDR DEPTH = 225
STATION D6
0102 CUT, 8/ 6/79
LAT. = 33 43.8 N.
LON. = 76 23.0 W.
BUCKET TEMP =27.7
PDR DEPTH = 370
STATION D7
0038 CUT, 8/ 6/79
LAT. = 33 40.1 N.
LON. = 76 17.8 W.
BUCKET TEMP =28.0
PDR DEPTH = 500
STATION D8
0015 CUT, 8/ 6/79
LAT. = 33 36.9 N.
LON. = 76 12.4 W.
BUCKET TEMP =28.4
PDR DEPTH = 600
STATION D9
2351 CUT, 8/ 5,79
LAT. = 33 33.8 N.
LON. = 76 07.1 W.
BUCKET TEMP =28.4
PDR DEPTH = 750
STATION D10
2328 CUT, 8/ 5/79
LAT. = 33 30.6 N.
LON. = 76 01.9 W.
BUCKET TEMP =28.3
PDR DEPTH = 1280

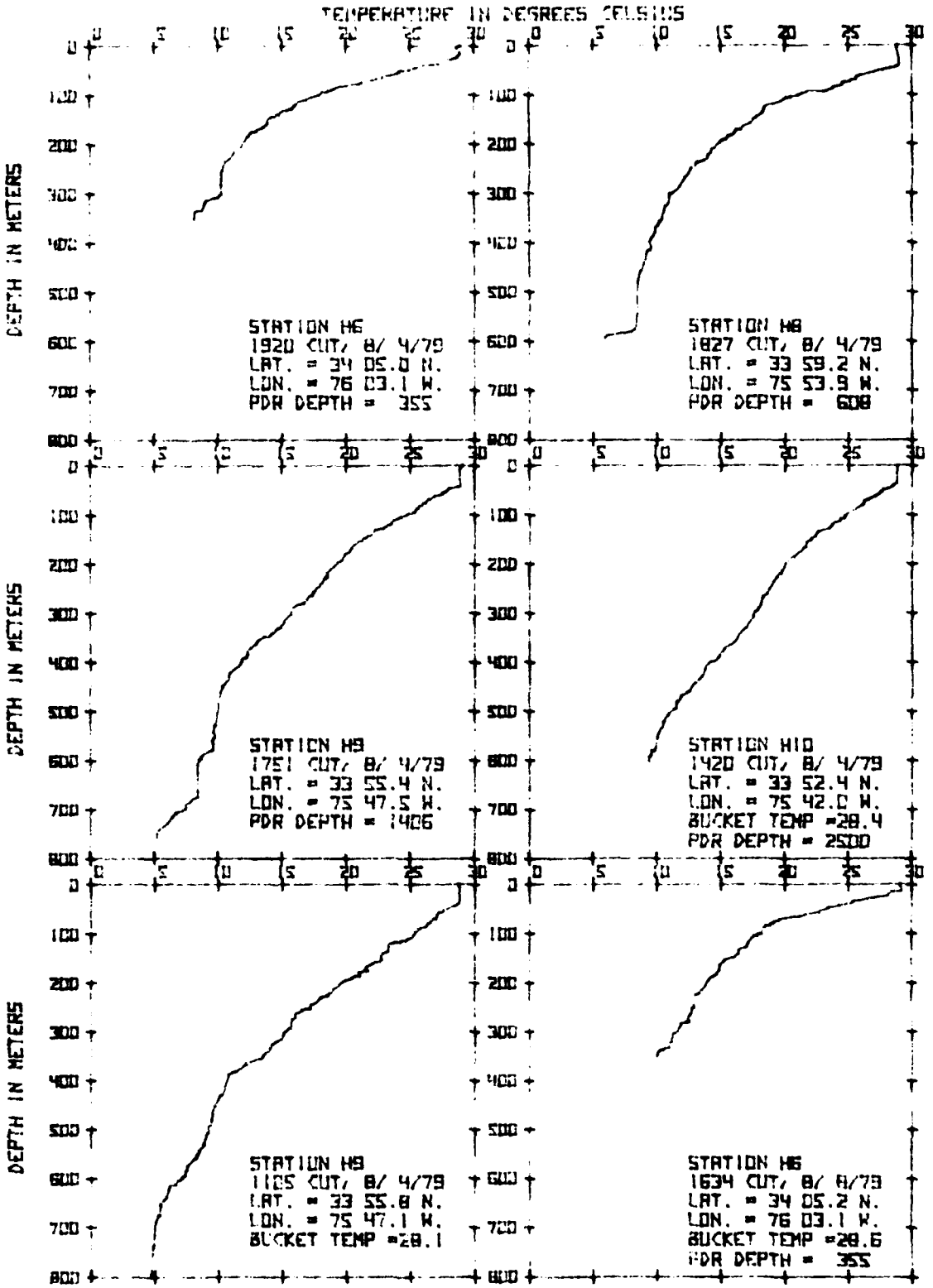

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION D11
2304 CUT, 8/ 5/79
LAT. = 33 27.0 N.
LON. = 75 57.0 W.
BUCKET TEMP =28.3
PDR DEPTH = 2300
STATION D12
2240 CUT, 8/ 5/79
LAT. = 33 24.2 N.
LON. = 75 51.5 W.
BUCKET TEMP =28.0
PDR DEPTH = 2830
STATION D13
2213 CUT, 8/ 5/79
LAT. = 33 20.8 N.
LON. = 75 46.3 W.
BUCKET TEMP =28.5
PDR DEPTH = 3030
STATION D14
2147 CUT, 8/ 5/79
LAT. = 33 17.2 N.
LON. = 75 41.0 W.
BUCKET TEMP =28.5
PDR DEPTH = 3190
STATION D15
2120 CUT, 8/ 5/79
LAT. = 33 14.5 N.
LON. = 75 36.0 W.
BUCKET TEMP =28.3
PDR DEPTH = 3280
STATION F1
1344 CUT, 8/ 5/79
LAT. = 34 10.3 N.
LON. = 76 38.7 W.
PDR DEPTH = 38

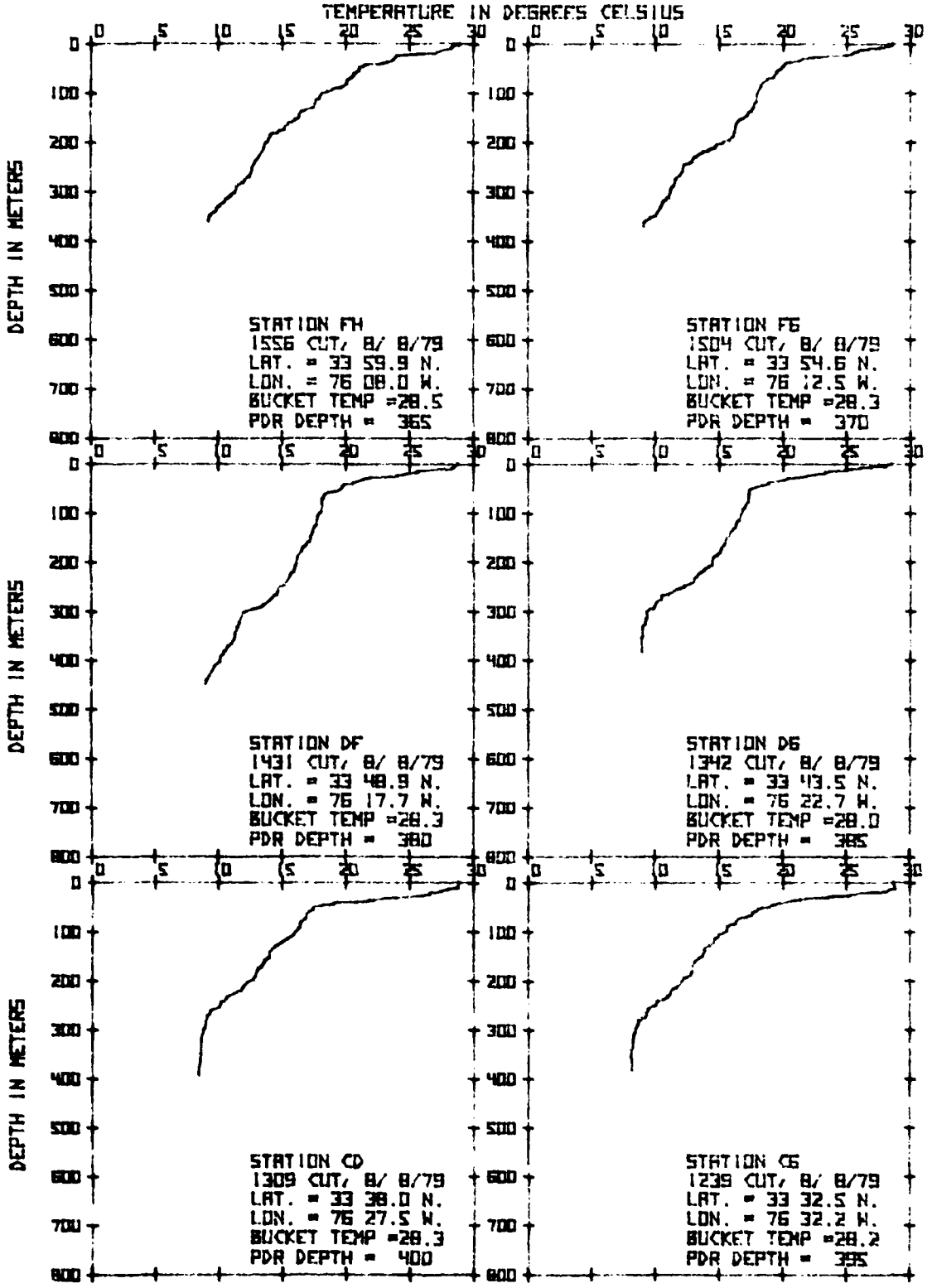

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION F2
1410 CUT/ 8/ 5/79
LAT. = 34 07.1 N.
LON. = 76 33.6 W.
PDR DEPTH = 27
STATION F3
1436 CUT/ 8/ 5/79
LAT. = 34 03.8 N.
LON. = 76 28.2 W.
PDR DEPTH = 29
STATION F4
1502 CUT/ 8/ 5/79
LAT. = 34 00.6 N.
LON. = 76 23.2 W.
PDR DEPTH = 46
STATION F5
1430 CUT/ 8/ 5/79
LAT. = 33 57.4 N.
LON. = 76 17.7 W.
PDR DEPTH = 179
STATION F6
1557 CUT/ 8/ 5/79
LAT. = 33 54.3 N.
LON. = 76 13.2 W.
PDR DEPTH = 390
STATION F7
1624 CUT/ 8/ 5/79
LAT. = 33 51.1 N.
LON. = 76 07.6 W.
PDR DEPTH = 508

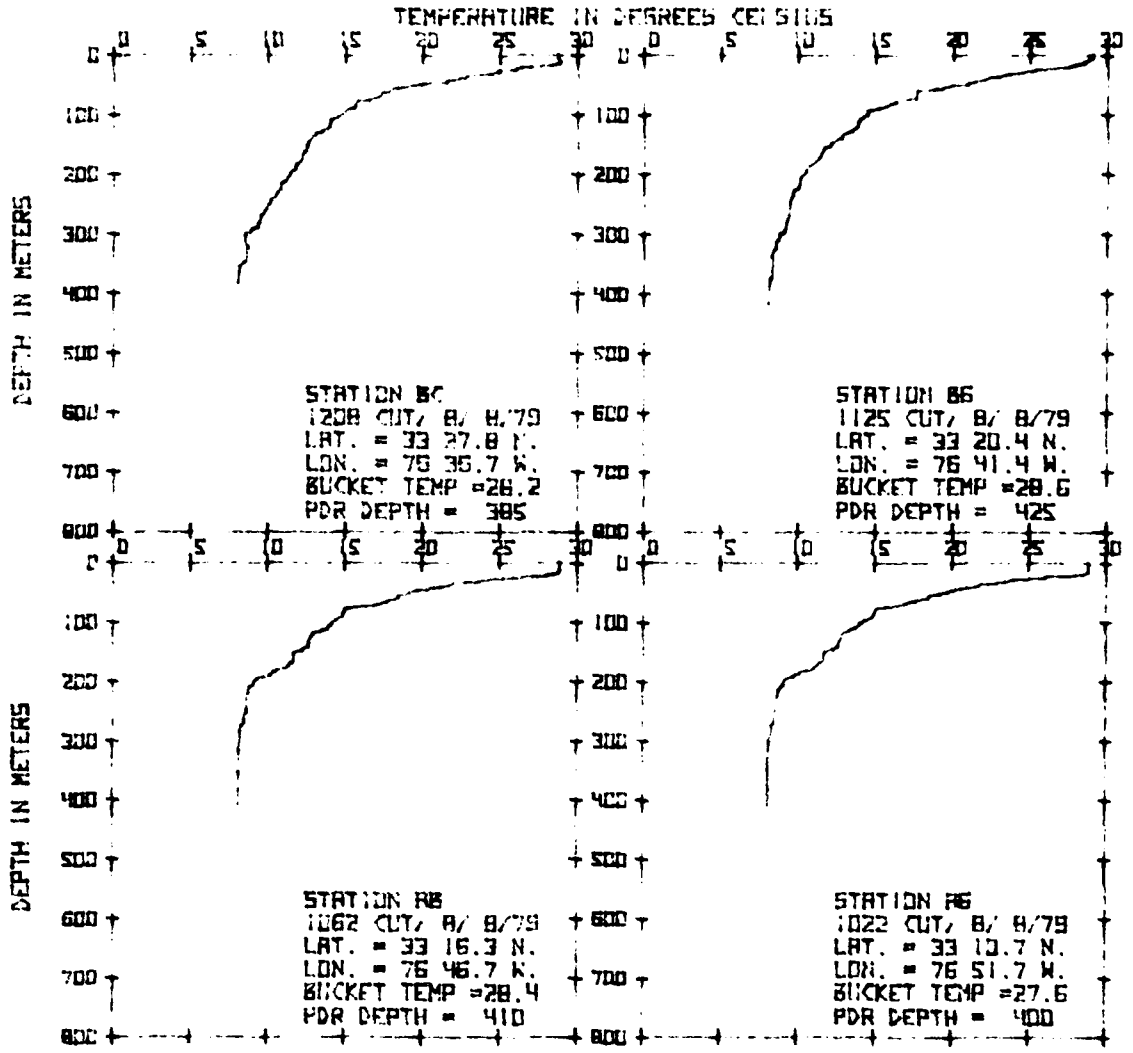

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION F8
1653 CUT/ 8/ 5/79
LAT. = 33 47.8 N.
LON. = 76 02.5 W.
PDR DEPTH = 615
STATION F9
1726 CUT/ 8/ 5/79
LAT. = 33 44.4 N.
LON. = 75 56.8 W.
PDR DEPTH = 929
STATION F10
1756 CUT/ 8/ 5/79
LAT. = 33 41.1 N.
LON. = 75 52.1 W.
PDR DEPTH = 1790
STATION F11
1834 CUT/ 8/ 5/79
LAT. = 33 38.0 N.
LON. = 75 46.8 W.
PDR DEPTH = 2880
STATION F12
1850 CUT/ 8/ 5/79
LAT. = 33 34.5 N.
LON. = 75 41.7 W.
STATION F13
1916 CUT/ 8/ 5/79
LAT. = 33 31.7 N.
LON. = 75 36.5 W.
PDR DEPTH = 3130


TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION F14
1945 CUT/33/29/33
LAT. = 33 28.5 N.
LON. = 75 31.3 W.
PDR DEPTH = 3200
STATION F15
2044 CUT/ 8/ 5/79
LAT. = 33 25.3 N.
LON. = 75 26.2 W.
BUCKET TEMP =28.0
PDR DEPTH = 3350
STATION H2
1826 CUT/ 8/ 3/79
LAT. = 34 18.5 N.
LON. = 76 23.5 W.
BUCKET TEMP =27.5
PDR DEPTH = 25
STATION H3
2049 CUT/ 8/ 3/79
LAT. = 34 14.9 N.
LON. = 76 18.6 W.
BUCKET TEMP =27.9
STATION H4
2223 CUT/ 8/ 3/79
LAT. = 34 11.5 N.
LON. = 76 13.4 W.
BUCKET TEMP =28.1
PDR DEPTH = 30
STATION H5
2326 CUT/ 8/ 3/79
LAT. = 34 08.3 N.
LON. = 76 08.3 W.
BUCKET TEMP =28.0


TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION H6
2358 CUT, 8/ 3/79
LAT. = 34 05.1 N.
LON. = 76 03.1 W.
BUCKET TEMP =28.1
PDR DEPTH = 360
STATION H7
0222 CUT, 8/ 4/79
LAT. = 34 02.2 N.
LON. = 75 57.5 W.
BUCKET TEMP =28.6
PDR DEPTH = 500
STATION H2
2110 CUT, 8/ 4/79
LAT. = 34 18.0 N.
LON. = 76 22.8 W.
PDR DEPTH = 30
STATION H3
2046 CUT, 8/ 4/79
LAT. = 34 14.7 N.
LON. = 76 19.0 W.
PDR DEPTH = 35
STATION H4
2016 CUT, 8/ 4/79
LAT. = 34 11.5 N.
LON. = 76 13.6 W.
PDR DEPTH = 45
STATION H5
1948 CUT, 8/ 4/79
LAT. = 34 08.3 N.
LON. = 76 08.4 W.
PDR DEPTH = 150


TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION H6
1920 CUT/ 8/ 4/79
LAT. = 34 05.0 N.
LON. = 76 03.1 W.
PDR DEPTH = 355
STATION H8
1827 CUT/ 8/ 4/79
LAT. = 33 59.2 N.
LON. = 75 53.9 W.
PDR DEPTH = 608
STATION H9
1751 CUT/ 8/ 4/79
LAT. = 33 55.4 N.
LON. = 75 47.5 W.
PDR DEPTH = 1406
STATION H10
1420 CUT/ 8/ 4/79
LAT. = 33 52.4 N.
LON. = 75 42.0 W.
BUCKET TEMP =28.4
PDR DEPTH = 2500
STATION H9
1105 CUT/ 8/ 4/79
LAT. = 33 55.8 N.
LON. = 75 47.1 W.
BUCKET TEMP =28.1
STATION H6
1634 CUT/ 8/ 4/79
LAT. = 34 05.2 N.
LON. = 76 03.1 W.
BUCKET TEMP =28.6
PDR DEPTH = 355


TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION FH
1556 CUT/ 8/ 8/79
LAT. = 33 59.9 N.
LON. = 76 08.0 W.
BUCKET TEMP =28.5
PDR DEPTH = 365
STATION F6
1504 CUT/ 8/ 8/79
LAT. = 33 54.6 N.
LON. = 76 12.5 W.
BUCKET TEMP =28.3
PDR DEPTH = 370
STATION DF
1431 CUT/ 8/ 8/79
LAT. = 33 48.9 N.
LON. = 76 17.7 W.
BUCKET TEMP =28.3
PDR DEPTH = 380
STATION D6
1342 CUT/ 8/ 8/79
LAT. = 33 43.5 N.
LON. = 76 22.7 W.
BUCKET TEMP =28.0
PDR DEPTH = 385
STATION CD
1309 CUT/ 8/ 8/79
LAT. = 33 38.0 N.
LON. = 76 27.5 W.
BUCKET TEMP =28.3
PDR DEPTH = 400
STATION C6
1239 CUT/ 8/ 8/79
LAT. = 33 32.5 N.
LON. = 76 32.2 W.
BUCKET TEMP =28.2
PDR DEPTH = 395


TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION B6
1125 CUT/ B/ 8/79
LAT. = 33 20.4 N.
LON. = 76 41.4 W.
BUCKET TEMP =28.6
PDR DEPTH = 425
STATION B8
1208 CUT/ B/ 8/79
LAT. = 33 27.8 N.
LON. = 76 35.7 W.
BUCKET TEMP =28.2
PDR DEPTH = 385
STATION R6
1022 CUT/ B/ 8/79
LAT. = 33 10.7 N.
LON. = 76 51.7 W.
BUCKET TEMP =27.6
PDR DEPTH = 400
STATION R8
1062 CUT/ B/ 8/79
LAT. = 33 16.3 N.
LON. = 76 46.7 W.
BUCKET TEMP =28.4
PDR DEPTH = 410

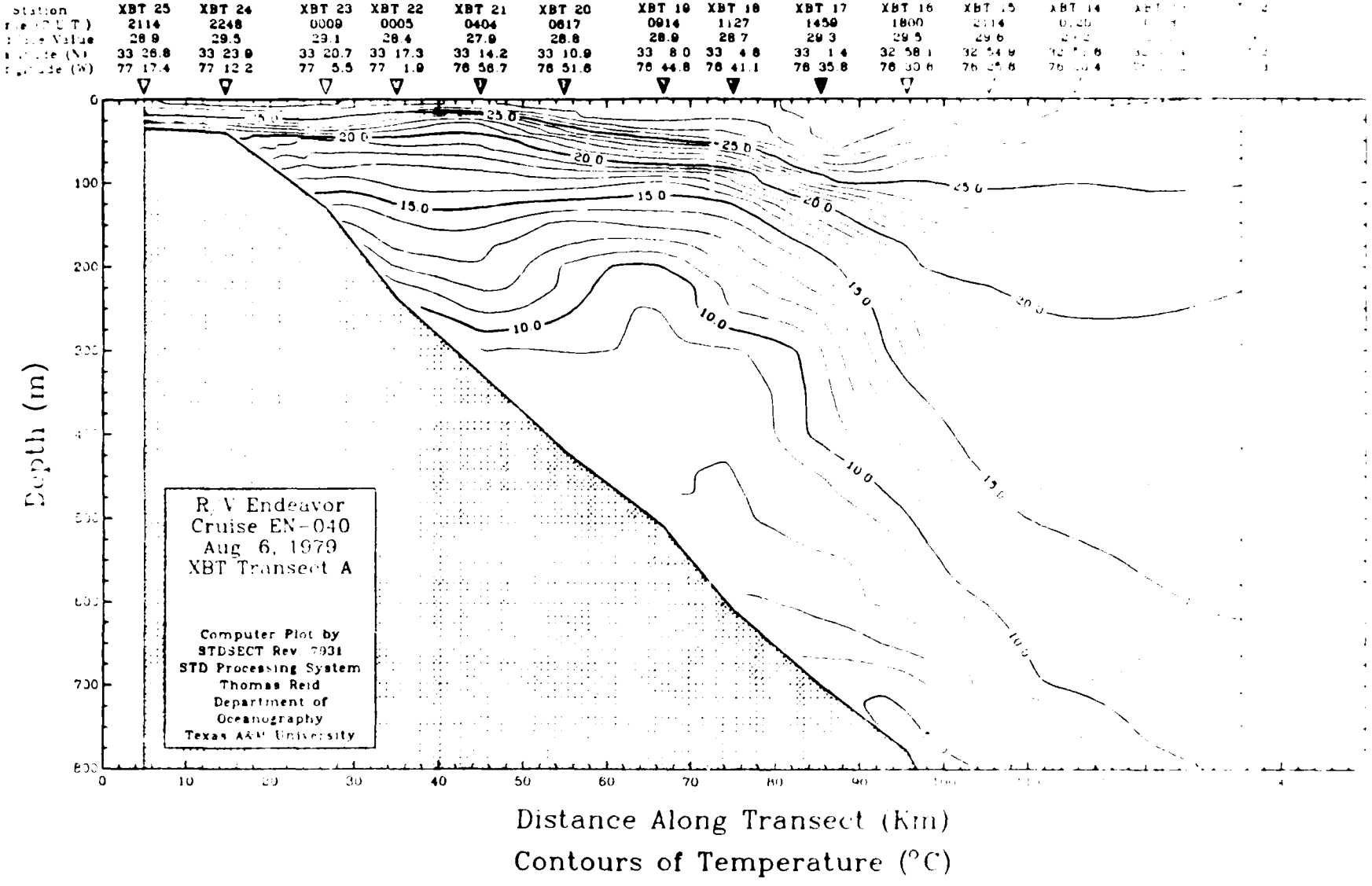
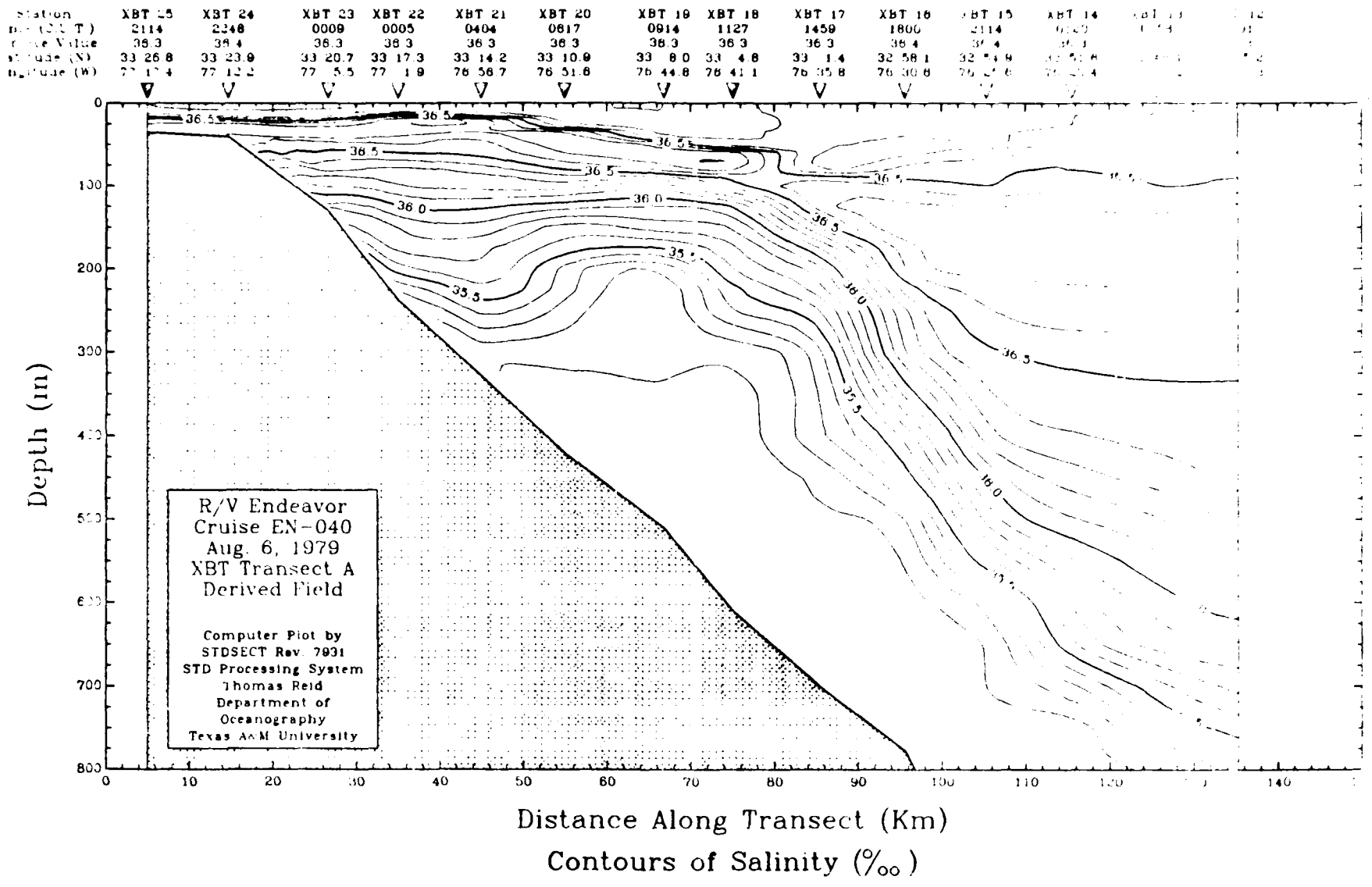
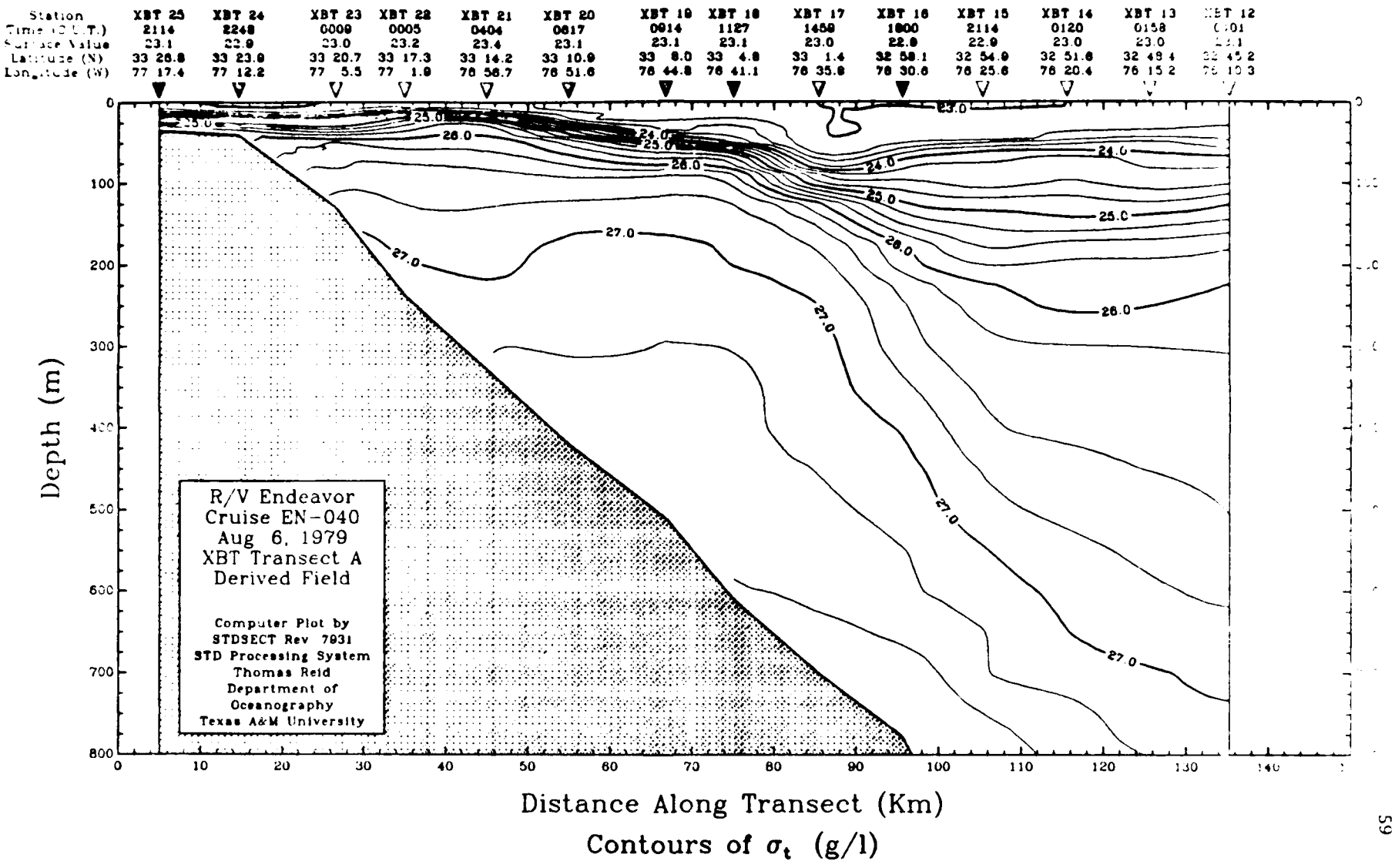
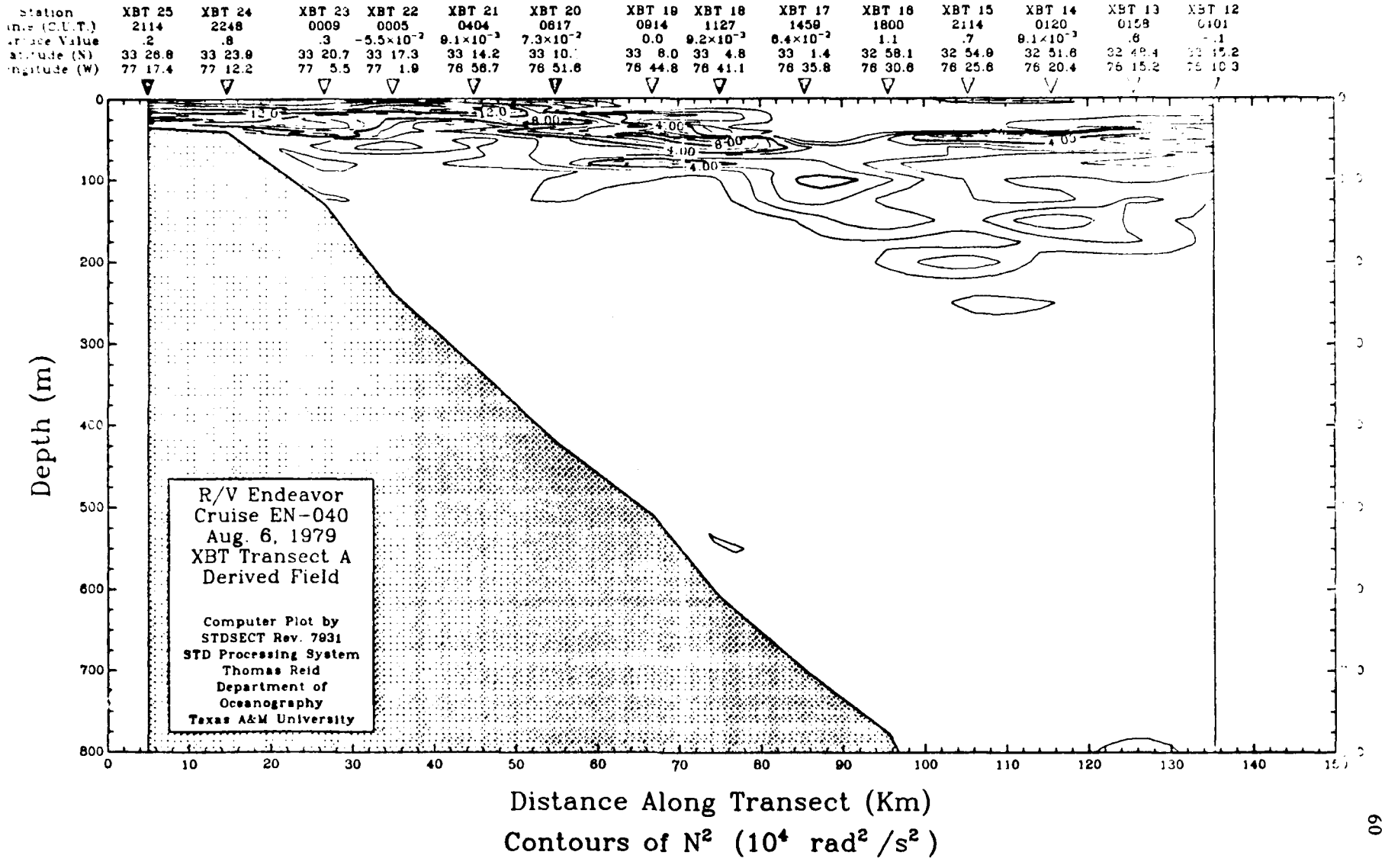


Figure 12. Section contours of temperature and derived [illegible] and N² fields for Transect A. Contour intervals are [illegible] 0.5×10⁻⁴ rad² [illegible]


Station XBT 25 XBT 24 XBT 23 XBT 22 XBT 21 XBT 20 XBT 19 XBT 18 XBT 17 XBT 16 XBT 15 XBT 14
Time (GMT) 2114 2348 0009 0005 0404 0817 0914 1127 1459 1800 2114
Surface Value 36.3 36.4 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.4 36.4
Latitude (N) 33 26.8 33 23.9 33 20.7 33 17.3 33 14.2 33 10.9 33 8.0 33 4.8 33 1.4 32 58.1
Longitude (W) 77 15.4 77 12.2 77 5.5 77 1.9 76 58.7 76 51.8 76 44.8 76 41.1 76 35.8 76 30.8
0
100
200
300
400
500
600
700
800
Depth (m)
36.5
36.0
35.5
R/V Endeavor
Cruise EN-040
Aug. 6, 1979
XBT Transect A
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0
10
20
30
40
50
60
70
80
90
100
110
120
140
Distance Along Transect (Km)
Contours of Salinity (‰)



Contours of σ_t (g/l)


Station
XBT 25
XBT 24
XBT 23
XBT 22
XBT 21
XBT 20
XBT 19
XBT 18
XBT 17
XBT 16
XBT 15
XBT 14
XBT 13
XBT 12
2114
2248
0009
0005
0404
0617
0914
1127
1458
1800
2114
0120
0158
0101
.2
.8
.3
-5.5×10^{-2}
9.1×10^{-3}
7.3×10^{-2}
0.0
9.2×10^{-3}
6.4×10^{-2}
1.1
.7
9.1×10^{-3}
.6
-.1
33 26.8
33 23.9
33 20.7
33 17.3
33 14.2
33 10.
33 8.0
33 4.8
33 1.4
32 58.1
32 54.9
32 51.8
32 49.4
32 15.2
77 17.4
77 12.2
77 5.5
77 1.9
76 56.7
76 51.8
76 44.8
76 41.1
76 35.8
76 30.8
76 25.8
76 20.4
76 15.2
76 10.3
12.0
8.00
4.00
Depth (m)
0
100
200
300
400
500
600
700
800
R/V Endeavor
Cruise EN-040
Aug. 6, 1979
XBT Transect A
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
Distance Along Transect (Km)
Contours of N^2 (10^4 rad^2/s^2)

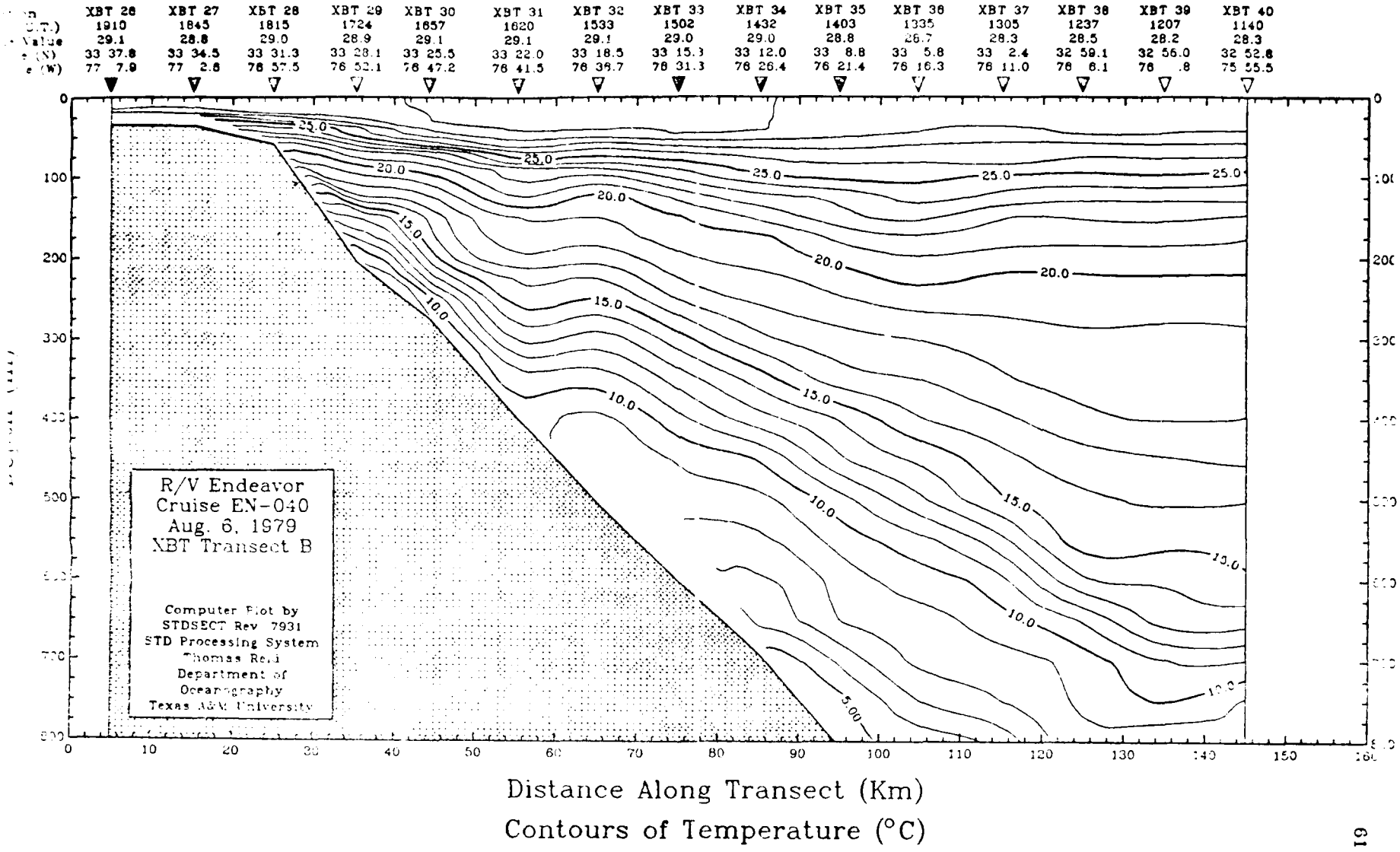
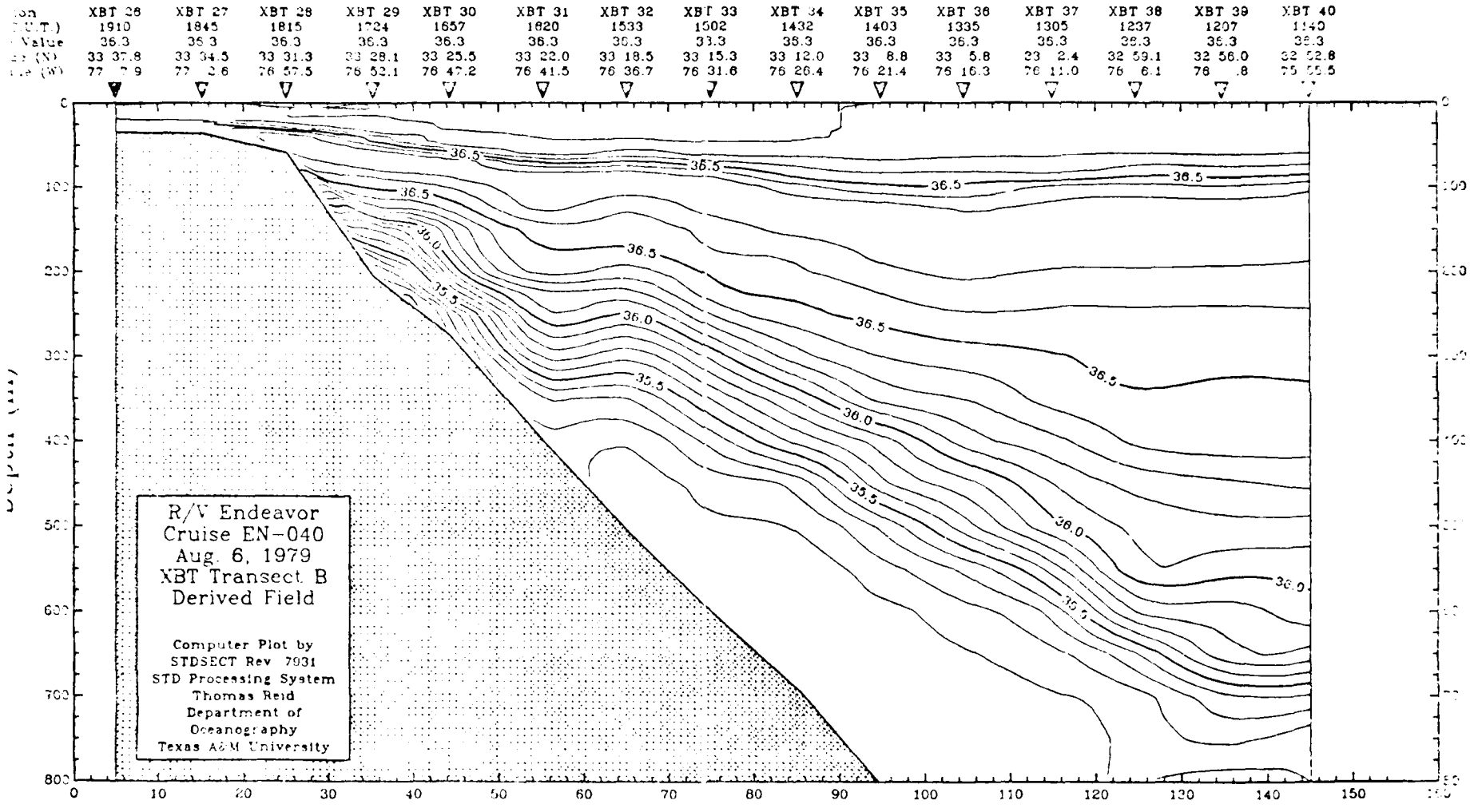
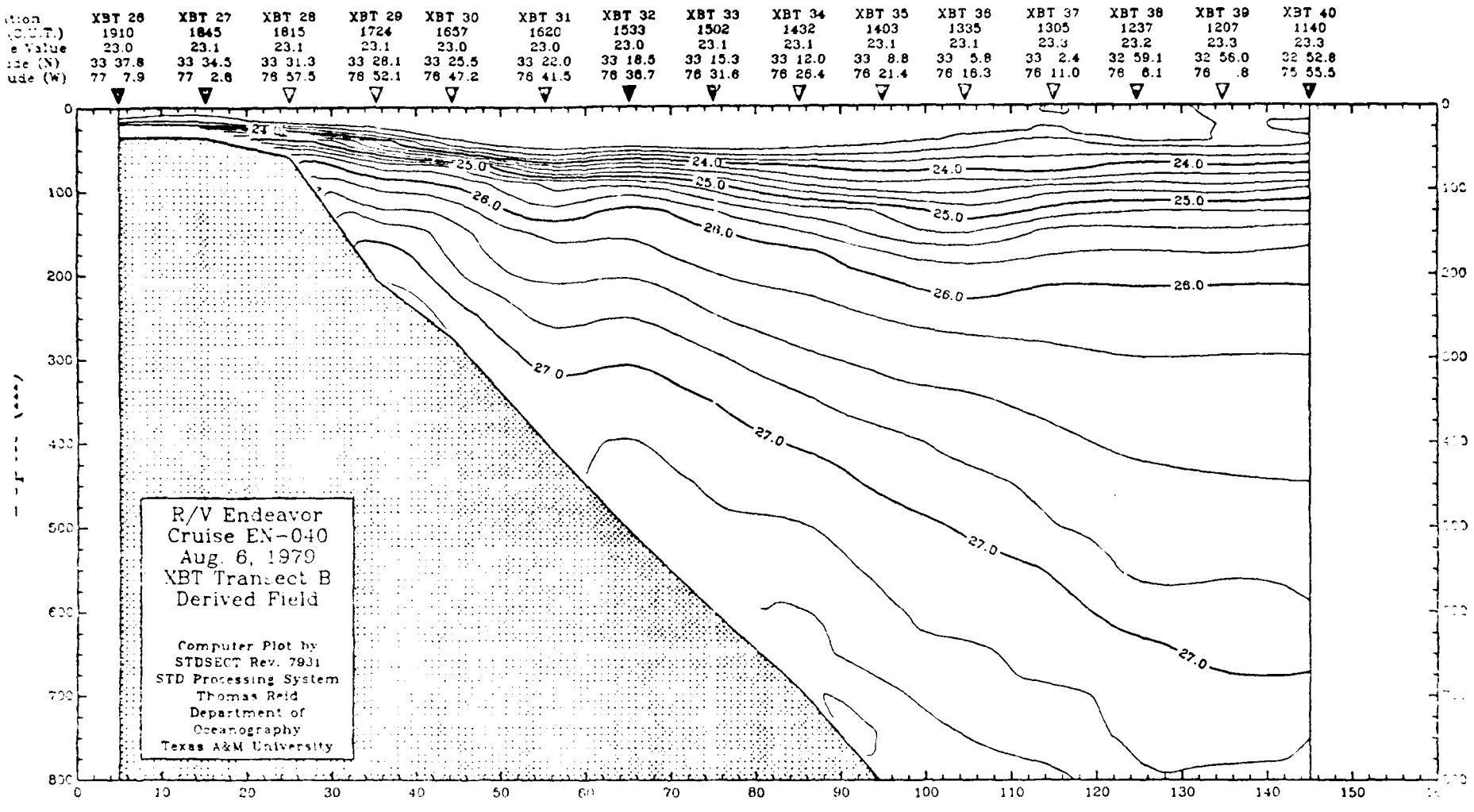


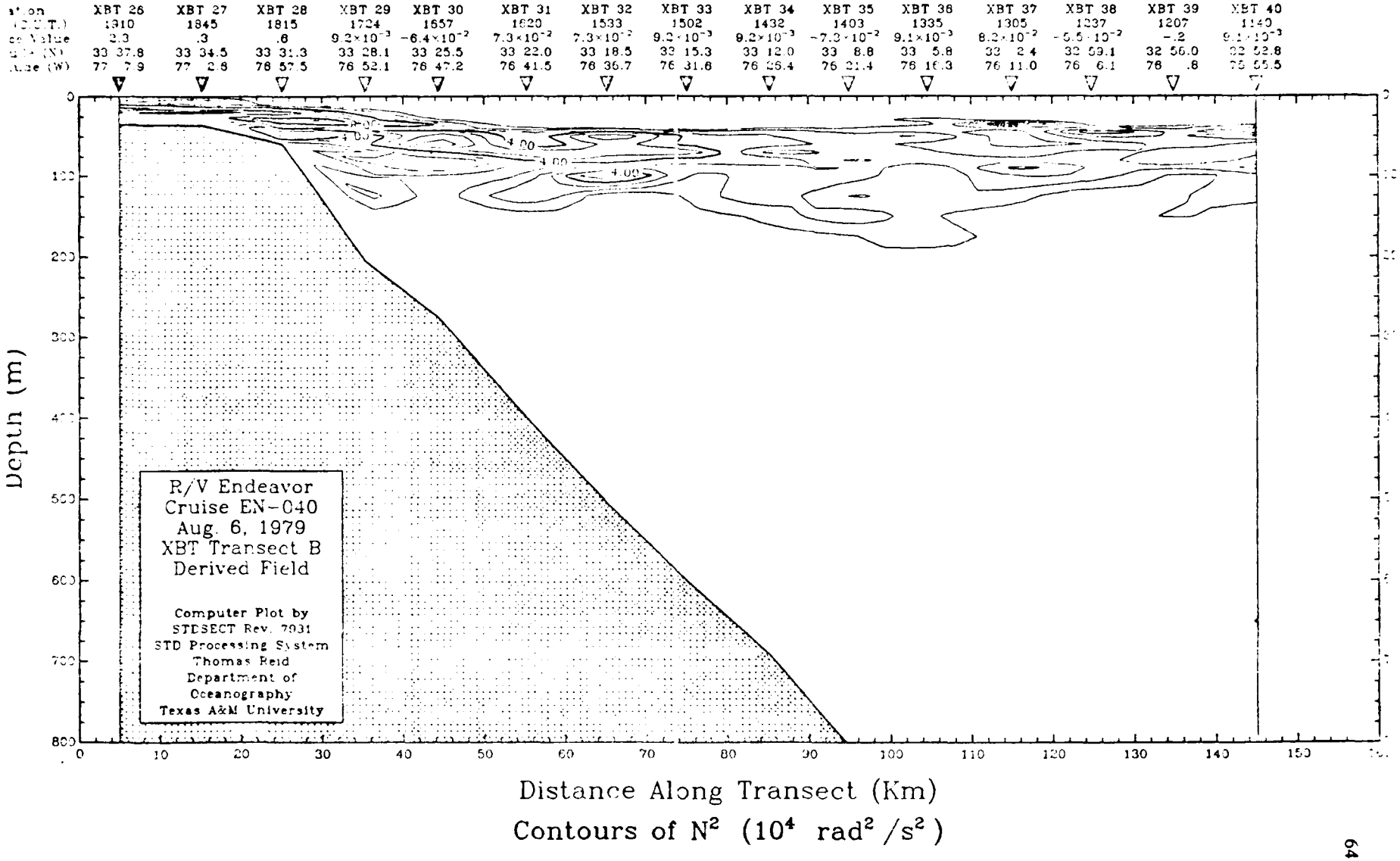
Figure 13 Section contours of temperature and derived salinity, sigma-t and N^2 fields for Transect B. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units and $0.5 \cdot 10^{-4}$ rad^{2}s^{-2}, respectively. This figure is continued on the next 3 pages


XBT 26
XBT 27
XBT 28
XBT 29
XBT 30
XBT 31
XBT 32
XBT 33
XBT 34
XBT 35
XBT 36
XBT 37
XBT 38
XBT 39
XBT 40
1910
1845
1815
1724
1657
1620
1533
1502
1432
1403
1335
1305
1237
1207
1140
36.3
33 34.5
33 31.3
33 28.1
33 25.5
33 22.0
33 18.5
33 15.3
33 12.0
33 8.8
33 5.8
33 2.4
32 59.1
32 56.0
32 52.8
77 2.6
76 57.5
76 52.1
76 47.2
76 41.5
76 36.7
76 31.6
76 26.4
76 21.4
76 16.3
76 11.0
76 6.1
76 .8
36.5
36.0
35.5
R/V Endeavor
Cruise EN-040
Aug. 6, 1979
XBT Transect B
Derived Field
Computer Plot by
STDSECT Rev 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
Distance Along Transect (Km)
Contours of Salinity (‰)



Distance Along Transect (Km)

Contours of σ_t (g/l)


XBT 26
XBT 27
XBT 28
XBT 29
XBT 30
XBT 31
XBT 32
XBT 33
XBT 34
XBT 35
XBT 36
XBT 37
XBT 38
XBT 39
XBT 40
1910
1845
1815
1724
1657
1620
1533
1502
1432
1403
1335
1305
1237
1207
1140
33 37.8
33 34.5
33 31.3
33 28.1
33 25.5
33 22.0
33 18.5
33 15.3
33 12.0
33 8.8
33 5.8
33 2.4
32 59.1
32 56.0
32 52.8
77 7.9
77 2.8
76 57.5
76 52.1
76 47.2
76 41.5
76 36.7
76 31.8
76 26.4
76 21.4
76 16.3
76 11.0
76 6.1
76 .8
75 55.5
4.00
Depth (m)
0
100
200
300
500
600
700
800
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
R/V Endeavor
Cruise EN-040
Aug. 6, 1979
XBT Transect B
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Distance Along Transect (Km)
Contours of N² (10⁴ rad²/s²)

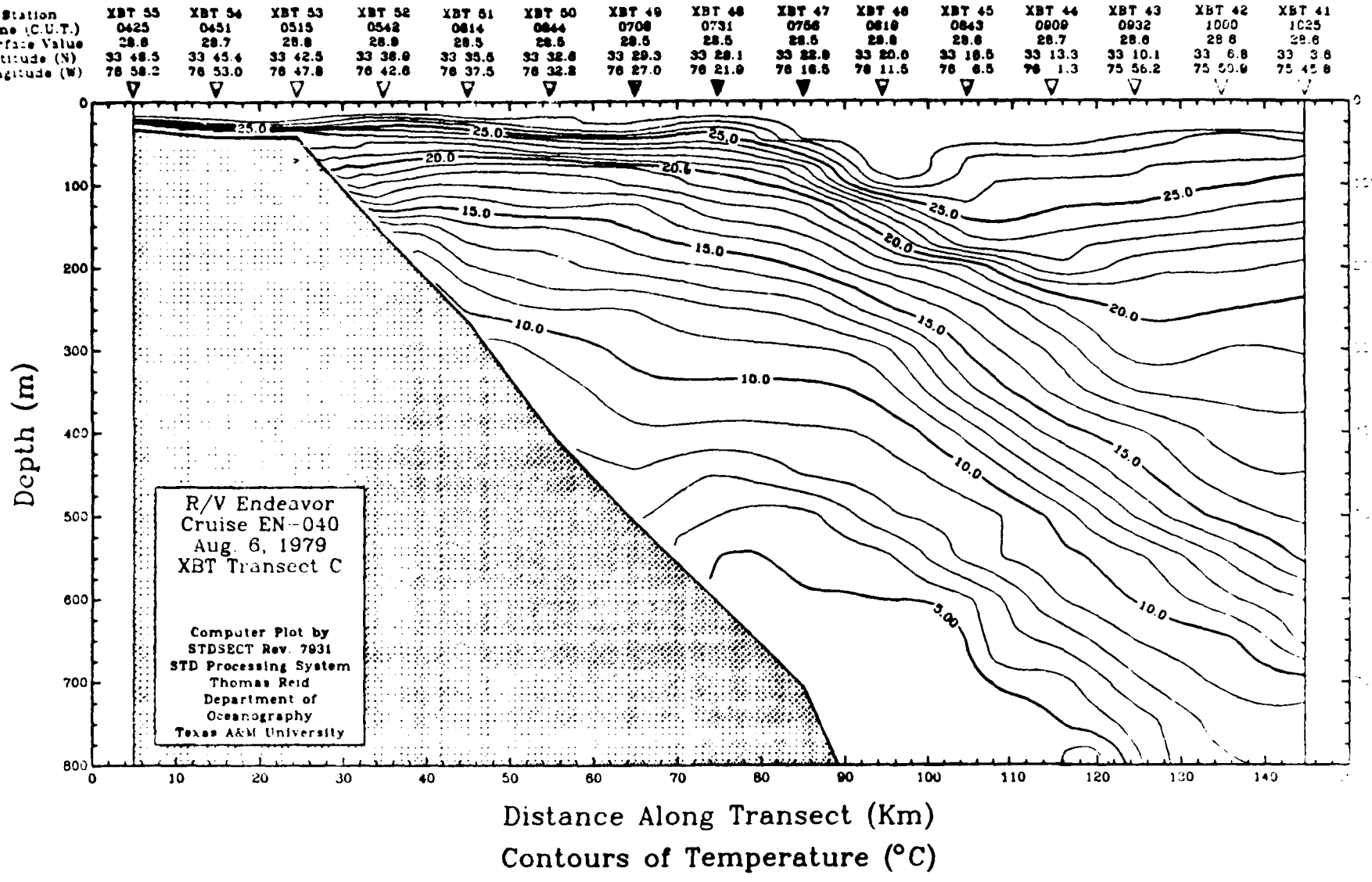
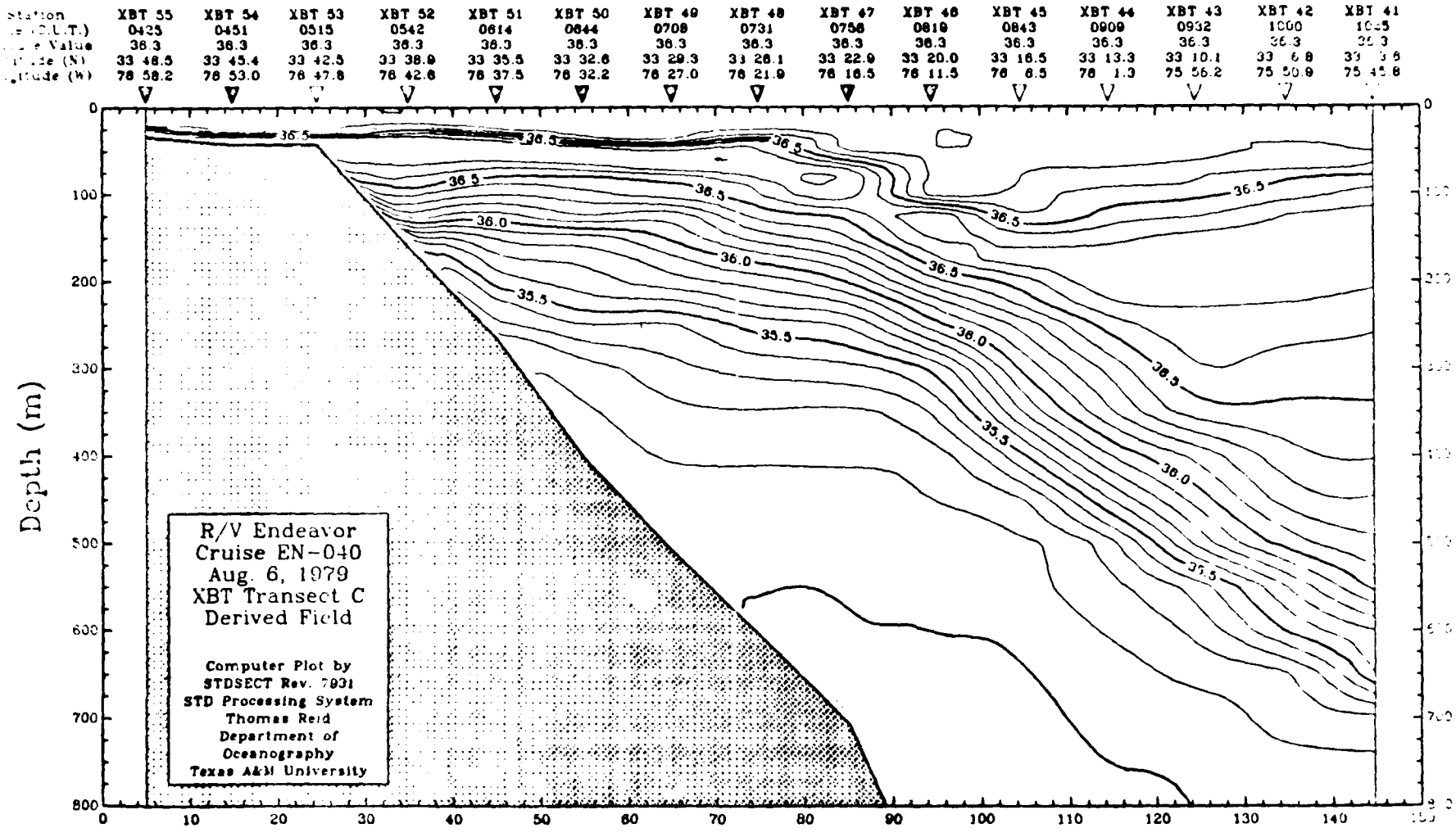
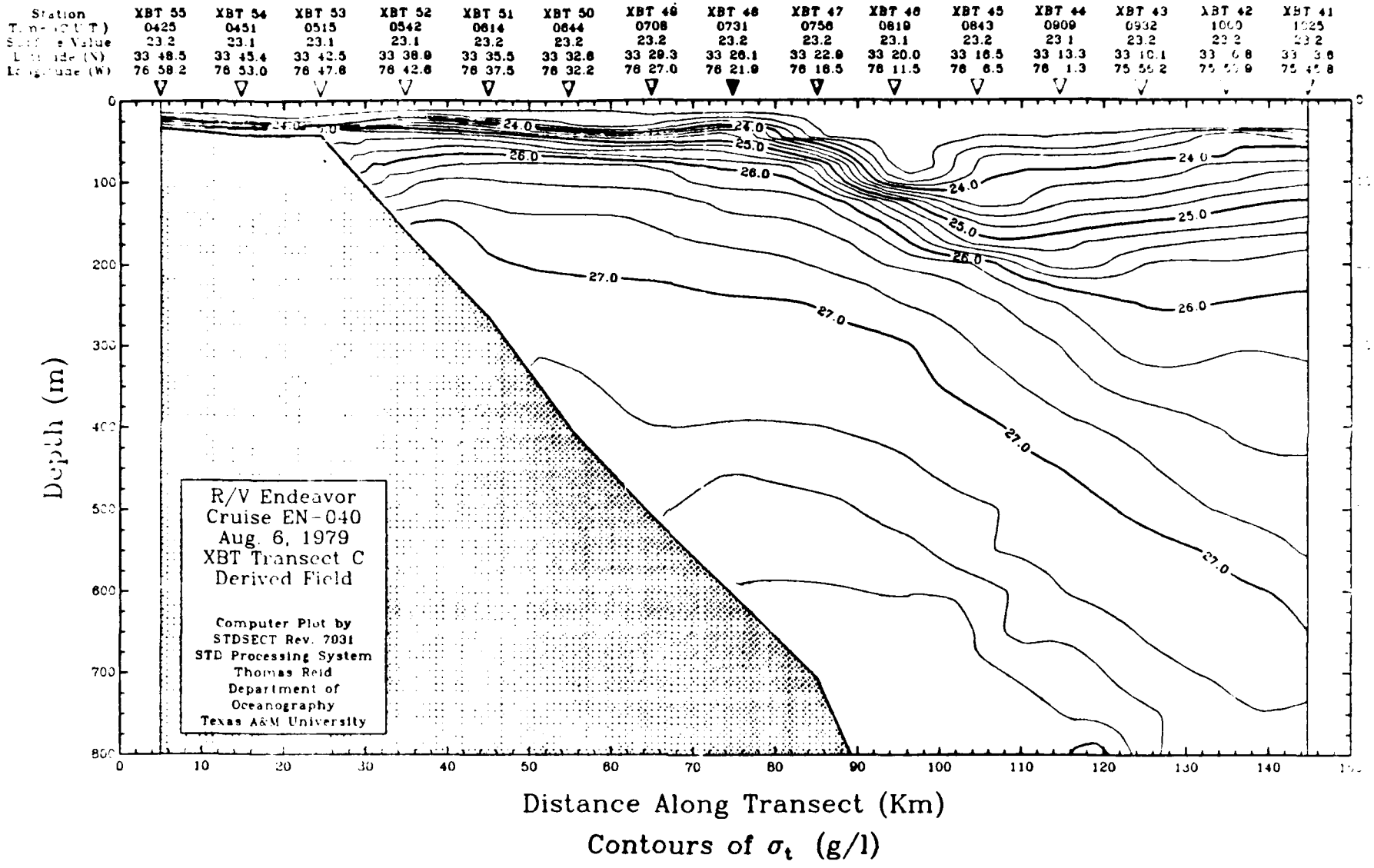
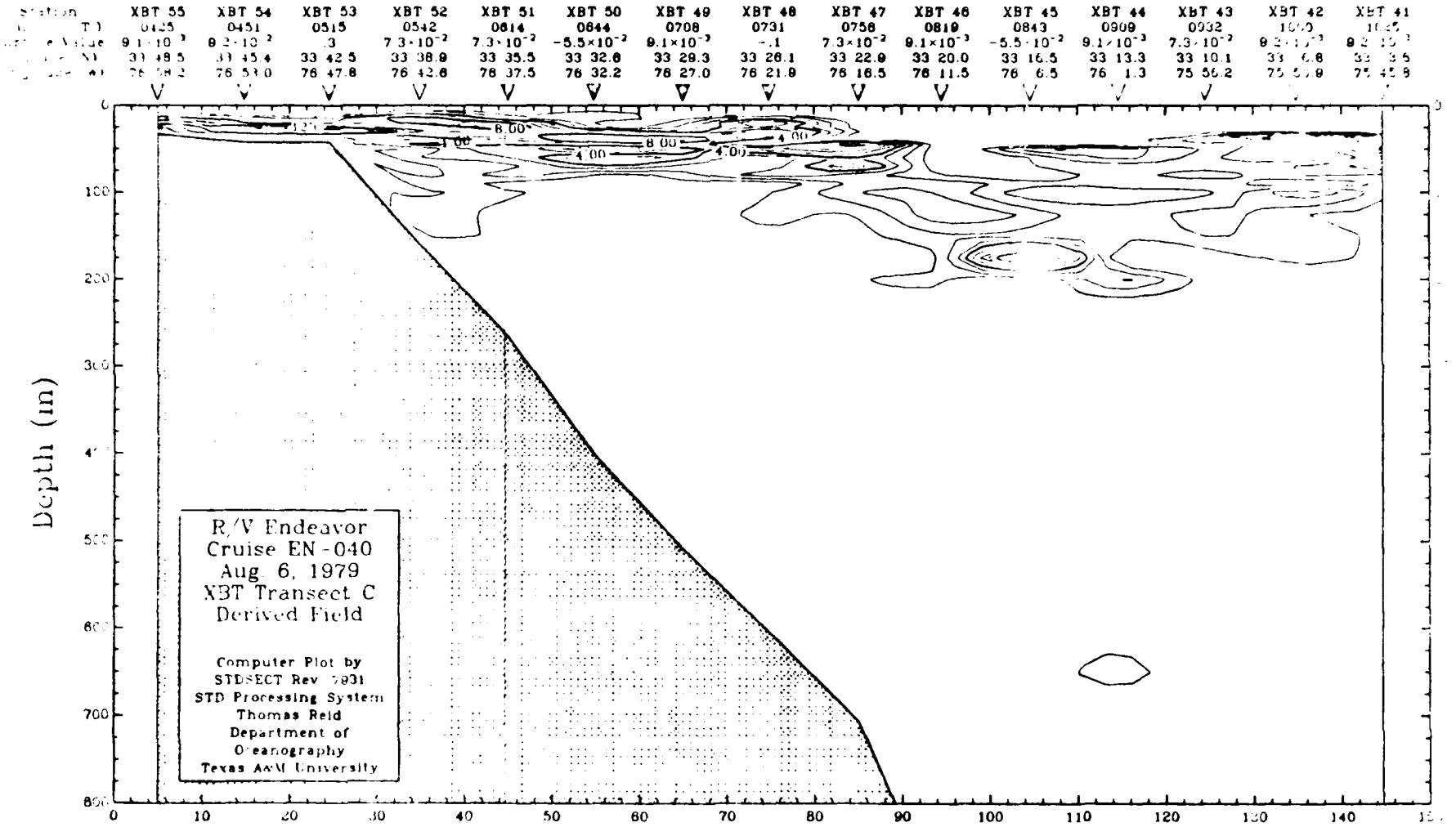


Figure 14. Section contours of temperature and derived salinity, sigma-t and N^2 fields for Transect C. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units and 0.5×10^{-4} rad^{2}s^{-2}, respectively. This figure is continued on the next 3 pages.


Station XBT 55 XBT 54 XBT 53 XBT 52 XBT 51 XBT 50 XBT 49 XBT 48 XBT 47 XBT 46 XBT 45 XBT 44 XBT 43 XBT 42 XBT 41
(G.M.T.) 0425 0451 0515 0542 0614 0644 0708 0731 0756 0819 0843 0909 0932 1000 1045
e Value 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3
tude (N) 33 46.5 33 45.4 33 42.5 33 38.9 33 35.5 33 32.6 33 29.3 33 26.1 33 22.9 33 20.0 33 16.5 33 13.3 33 10.1 33 6.8 33 3.6
itude (W) 76 58.2 76 53.0 76 47.8 76 42.6 76 37.5 76 32.2 76 27.0 76 21.9 76 16.5 76 11.5 76 6.5 76 1.3 75 56.2 75 50.9 75 45.8
36.5
36.0
35.5
33.3
Depth (m)
0
100
200
300
400
500
600
700
800
R/V Endeavor
Cruise EN-040
Aug. 6, 1979
XBT Transect C
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
Distance Along Transect (Km)
Contours of Salinity (‰)


Station
XBT 55
XBT 54
XBT 53
XBT 52
XBT 51
XBT 50
XBT 49
XBT 48
XBT 47
XBT 46
XBT 45
XBT 44
XBT 43
XBT 42
XBT 41
0425
0451
0515
0542
0614
0644
0708
0731
0756
0819
0843
0909
0932
1000
1025
23.2
23.1
23.1
23.1
23.2
23.2
23.2
23.2
23.2
23.1
23.2
23.1
23.2
23.2
23.2
33 48.5
33 45.4
33 42.5
33 38.9
33 35.5
33 32.6
33 29.3
33 26.1
33 22.9
33 20.0
33 16.5
33 13.3
33 10.1
33 6.8
33 3.6
76 58.2
76 53.0
76 47.6
76 42.6
76 37.5
76 32.2
76 27.0
76 21.9
76 16.5
76 11.5
76 6.5
76 1.3
75 56.2
75 50.9
75 45.8
Depth (m)
0
100
200
300
400
500
600
700
800
10
20
30
40
50
60
70
80
90
100
110
120
130
140
24.0
25.0
26.0
27.0
R/V Endeavor
Cruise EN-040
Aug. 6, 1979
XBT Transect C
Derived Field
Computer Plot by
STDSECT Rev. 7031
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Distance Along Transect (Km)
Contours of σ_t (g/l)


Station XBT 55 XBT 54 XBT 53 XBT 52 XBT 51 XBT 50 XBT 49 XBT 48 XBT 47 XBT 46 XBT 45 XBT 44 XBT 43 XBT 42 XBT 41
0425 0451 0515 0542 0614 0644 0708 0731 0758 0819 0843 0909 0932
33 48.5 33 45.4 33 42.5 33 38.9 33 35.5 33 32.6 33 29.3 33 26.1 33 22.9 33 20.0 33 16.5 33 13.3 33 10.1
76 58.2 76 53.0 76 47.8 76 42.6 76 37.5 76 32.2 76 27.0 76 21.8 76 16.5 76 11.5 76 6.5 76 1.3 75 56.2
Depth (m)
0
100
200
300
500
600
700
800
8.00
4.00
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
Distance Along Transect (Km)
R/V Endeavor
Cruise EN-040
Aug. 6, 1979
XBT Transect C
Derived Field
Computer Plot by
STDSECT Rev 7831
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Contours of N² (10⁴ rad²/s²)

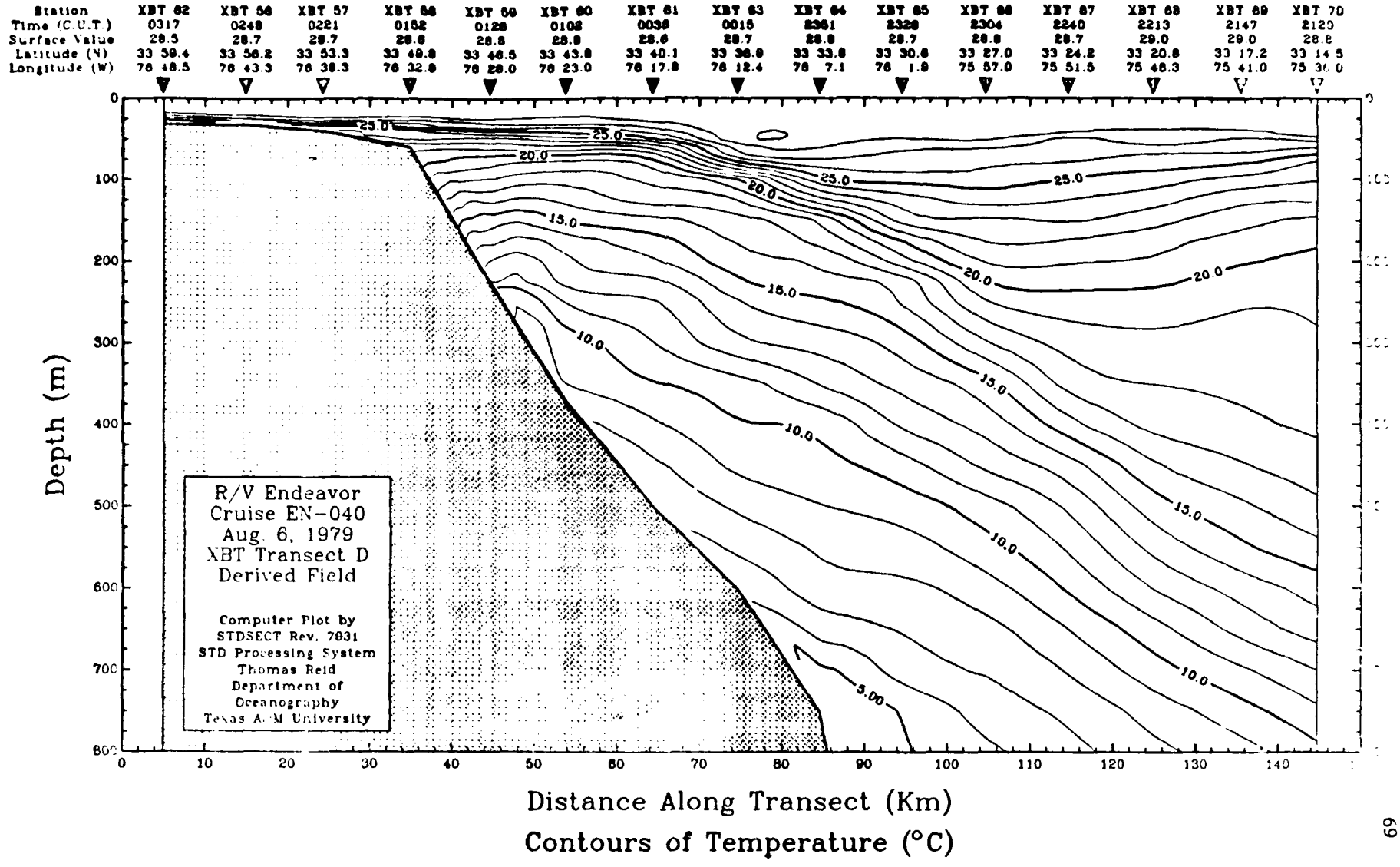
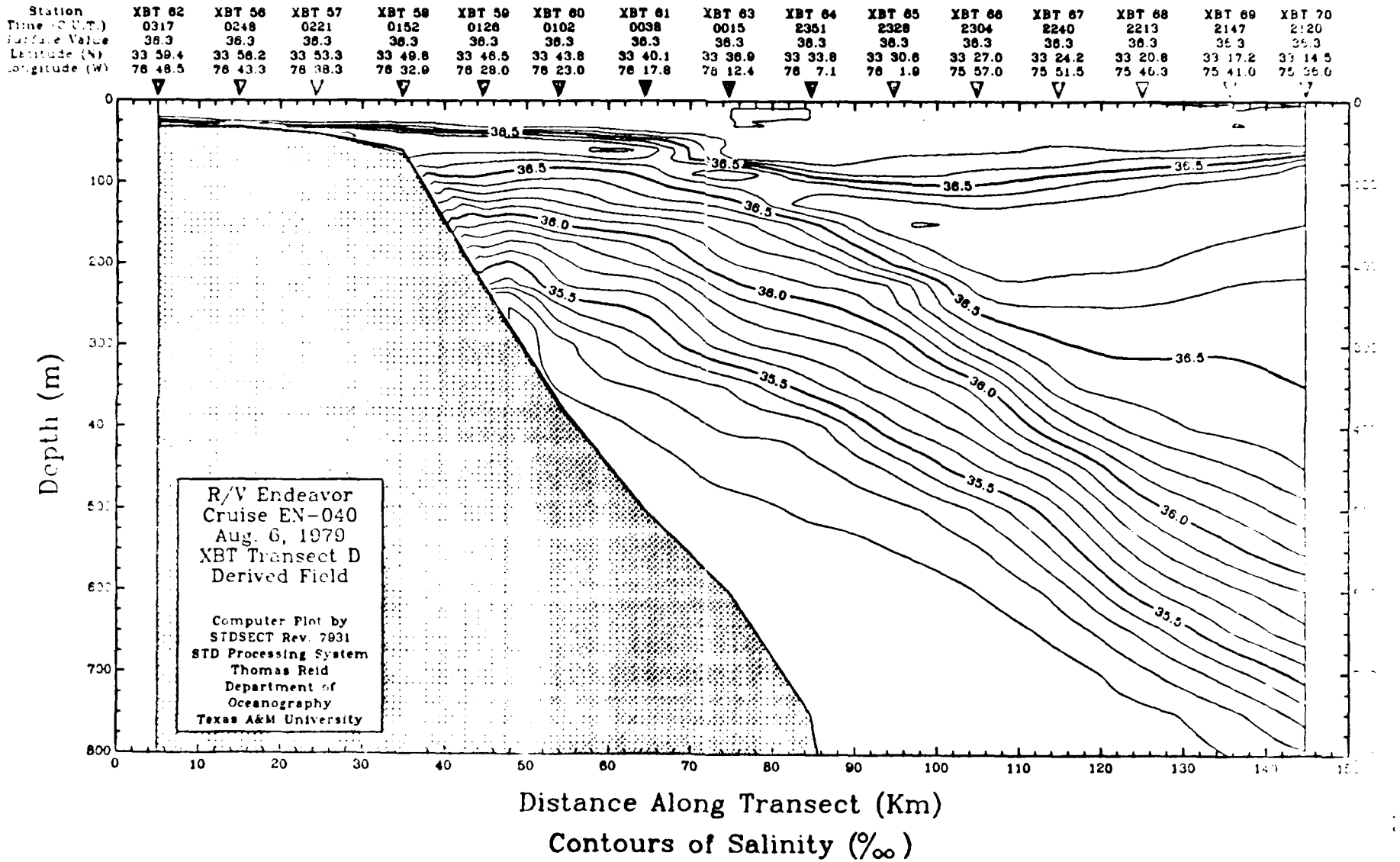
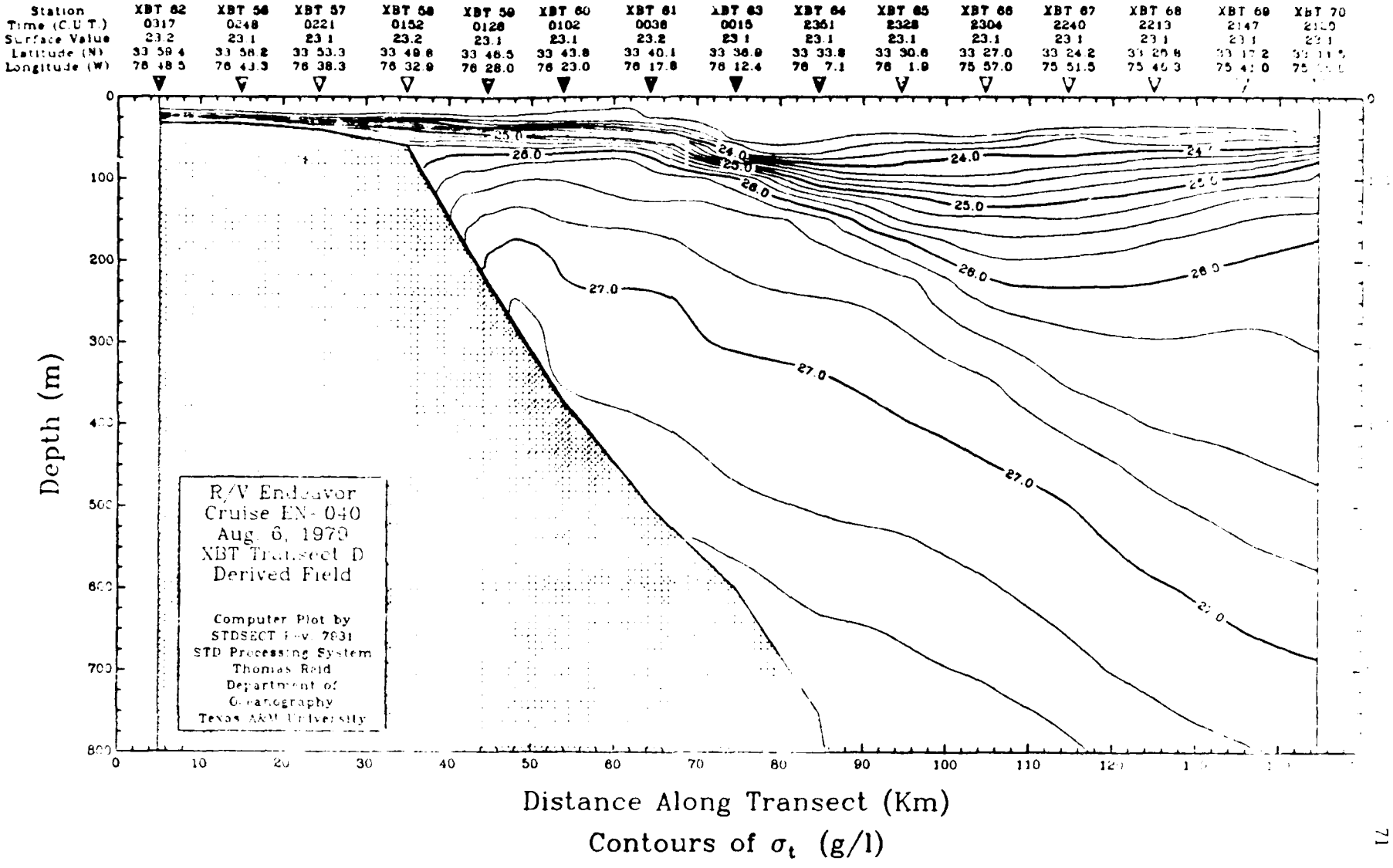
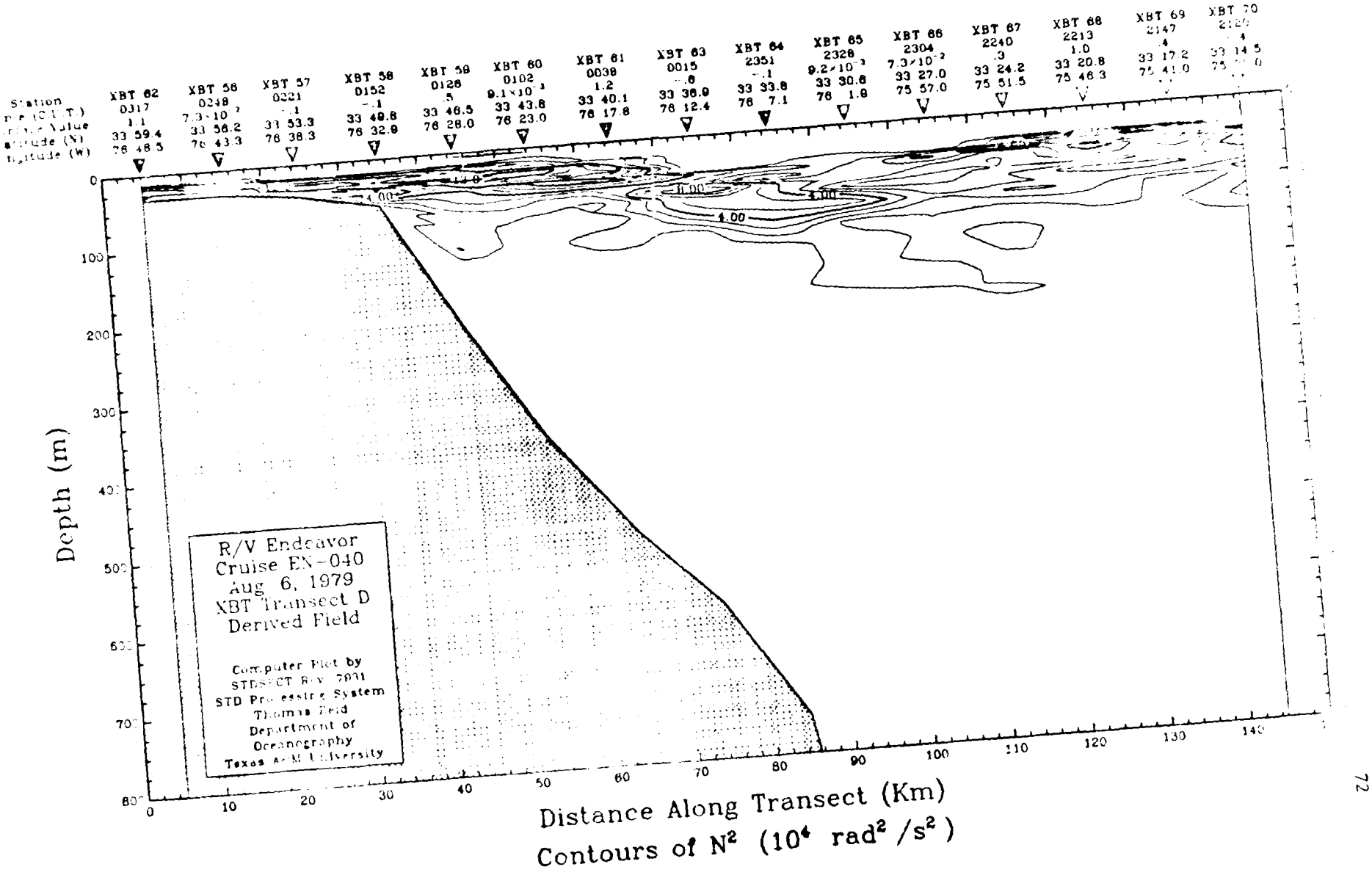


Figure 15. Section contours of temperature and derived salinity, sigma-t and N^2 fields for Transect D. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units and 0.5×10^{-4} rad^{2}s^{-2}, respectively. This figure is continued on the next 3 pages.


Station
Time (G.M.T.)
Surface Value
Latitude (N)
Longitude (W)
XBT 62 0317 38.3 33 59.4 78 48.5
XBT 56 0248 38.3 33 56.2 78 43.3
XBT 57 0221 38.3 33 53.3 78 38.3
XBT 58 0152 38.3 33 49.8 78 32.9
XBT 59 0126 38.3 33 46.5 78 28.0
XBT 60 0102 38.3 33 43.8 78 23.0
XBT 61 0038 38.3 33 40.1 78 17.8
XBT 63 0015 38.3 33 36.9 78 12.4
XBT 64 2351 38.3 33 33.8 78 7.1
XBT 65 2328 38.3 33 30.6 78 1.9
XBT 66 2304 38.3 33 27.0 75 57.0
XBT 67 2240 38.3 33 24.2 75 51.5
XBT 68 2213 38.3 33 20.8 75 46.3
XBT 69 2147 38.3 33 17.2 75 41.0
XBT 70 2120 38.3 33 14.5 75 36.0
Depth (m)
0
100
200
300
400
500
600
700
800
36.5
36.0
35.5
R/V Endeavor
Cruise EN-040
Aug. 6, 1979
XBT Transect D
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0
10
20
30
40
50
60
70
80
90
100
110
120
130
Distance Along Transect (Km)
Contours of Salinity (‰)


Station
Time (G.M.T.)
Surface Value
Latitude (N)
Longitude (W)
XBT 55 0317 23.2 33 58.4 78 48.5
XBT 56 0248 23.1 33 56.2 78 43.3
XBT 57 0221 23.1 33 53.3 78 38.3
XBT 58 0152 23.2 33 49.6 78 32.9
XBT 59 0126 23.1 33 46.5 78 28.0
XBT 60 0102 23.1 33 43.8 78 23.0
XBT 61 0038 23.2 33 40.1 78 17.8
XBT 63 0015 23.1 33 36.9 78 12.4
XBT 64 2351 23.1 33 33.8 78 7.1
XBT 65 2328 23.1 33 30.6 78 1.9
XBT 66 2304 23.1 33 27.0 75 57.0
XBT 67 2240 23.1 33 24.2 75 51.5
XBT 68 2213 23.1 33 20.6 75 45.3
XBT 69 2147 23.1 33 17.2 75 41.0
XBT 70 2130 23.1
Depth (m)
0
100
200
300
400
500
600
700
800
24.0
25.0
26.0
27.0
R/V Endeavor
Cruise EN-040
Aug. 6, 1979
XBT Transect D
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0
10
20
30
40
50
60
70
80
90
100
110
120
Distance Along Transect (Km)
Contours of σ_t (g/l)


Station
XBT 62
XBT 56
XBT 57
XBT 58
XBT 59
XBT 60
XBT 61
XBT 63
XBT 64
XBT 65
XBT 66
XBT 67
XBT 68
XBT 69
XBT 70
Depth (m)
0
100
200
300
400
500
600
700
800
1.00
R/V Endeavor
Cruise EN-040
Aug. 6, 1979
XBT Transect D
Derived Field
Computer Plot by
STDSECT Rev 7001
STD Processing System
Thomas Field
Department of
Oceanography
Texas A&M University
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
Distance Along Transect (Km)
Contours of N² (10⁴ rad² /s²)

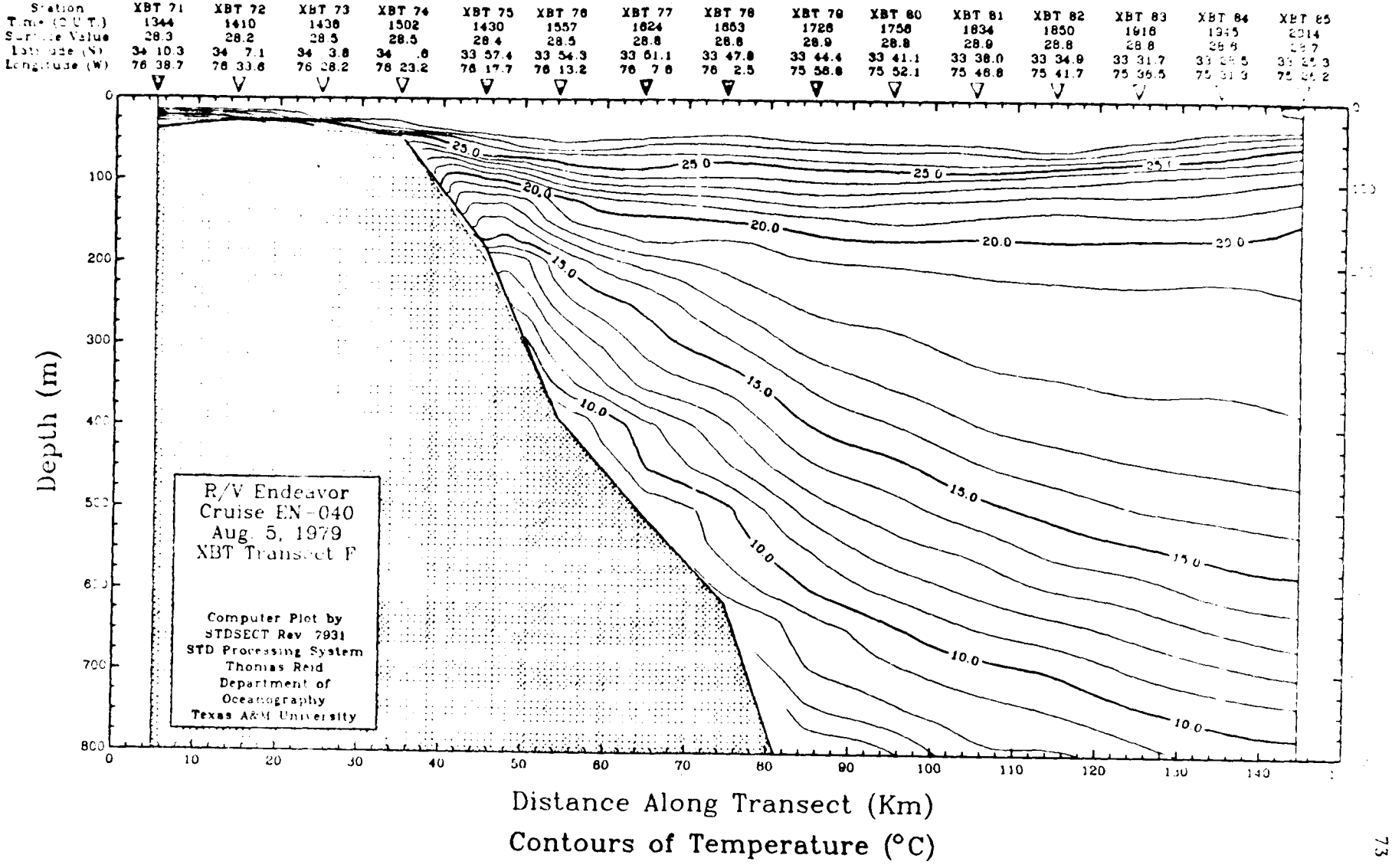
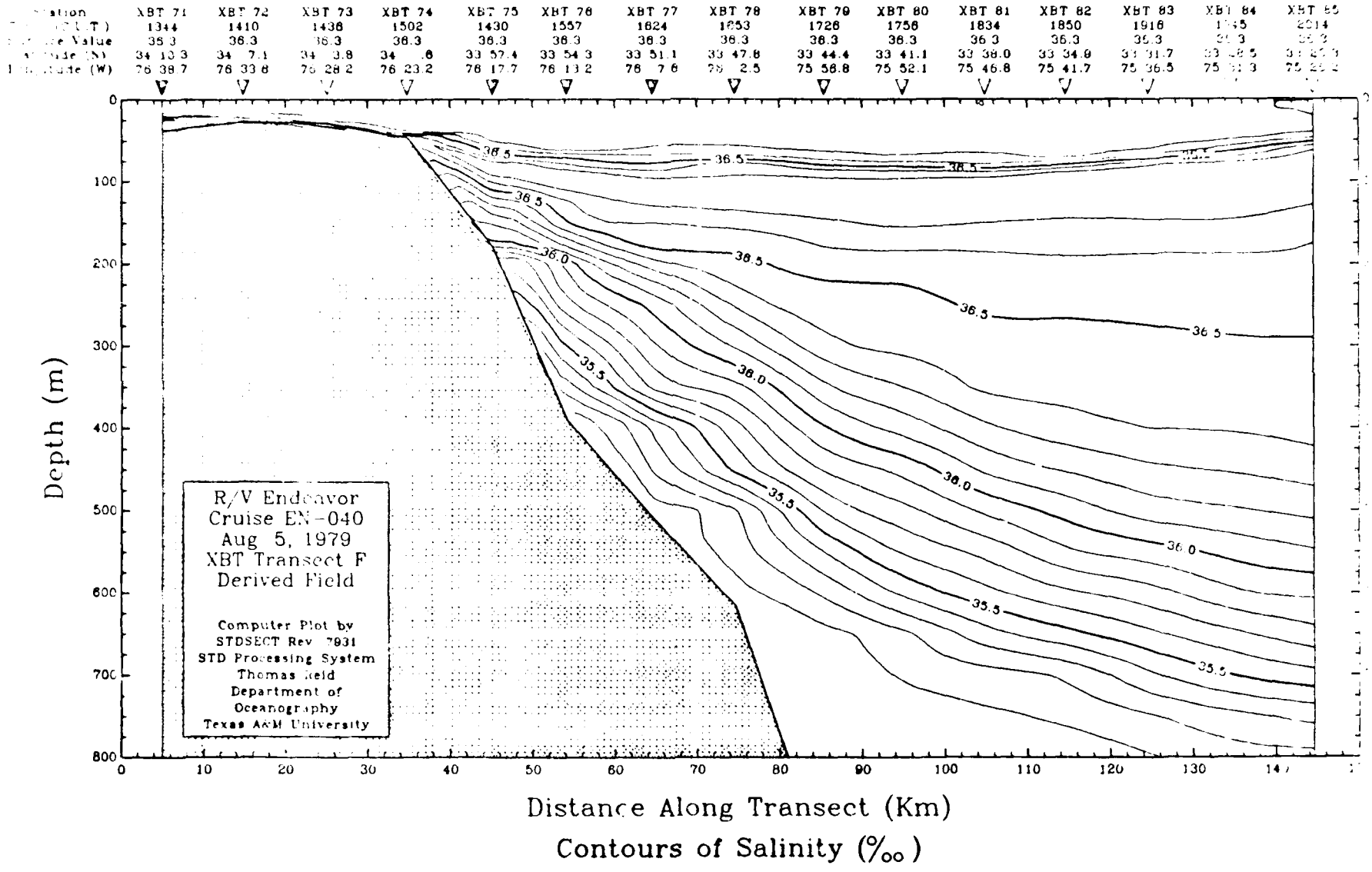
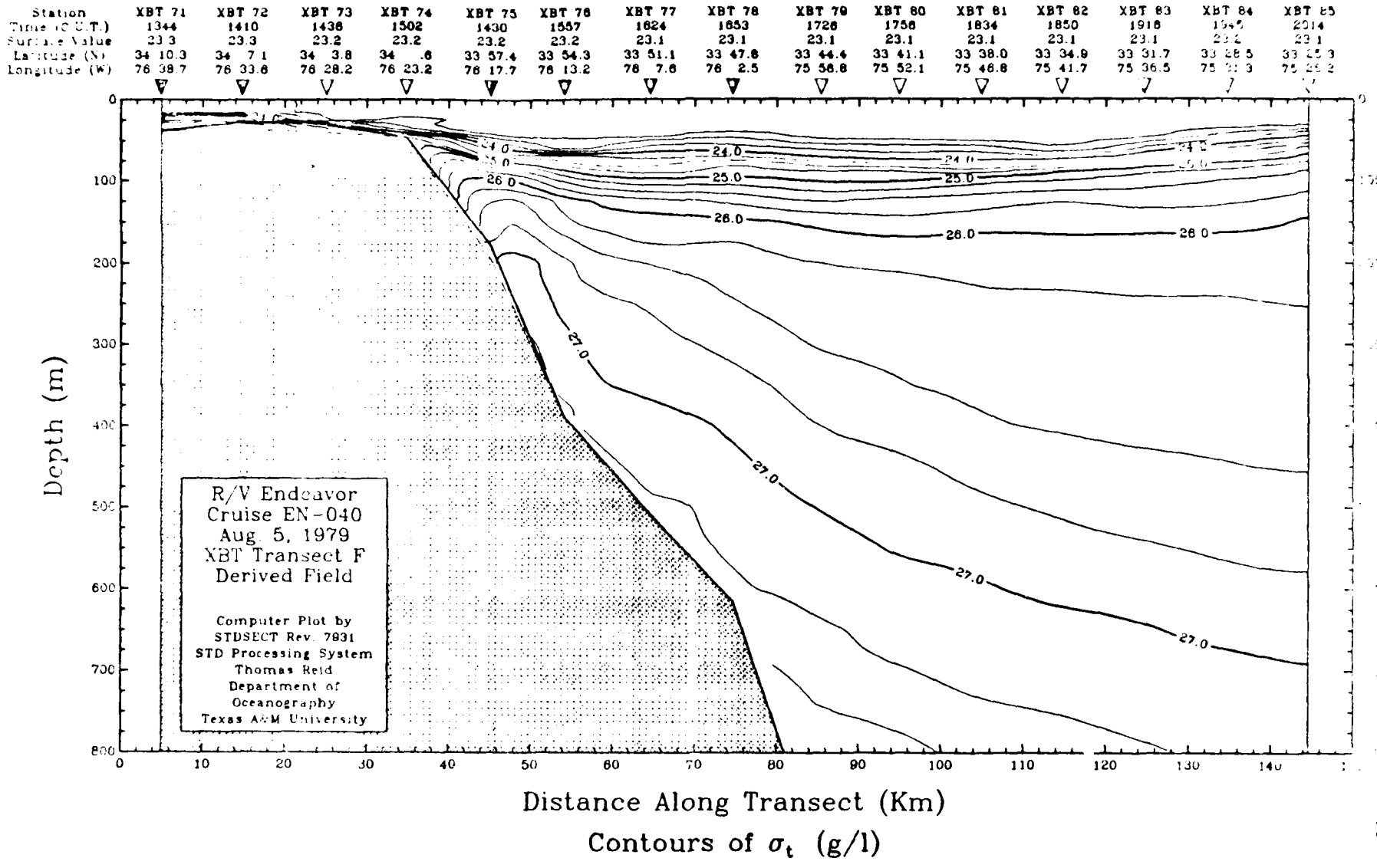
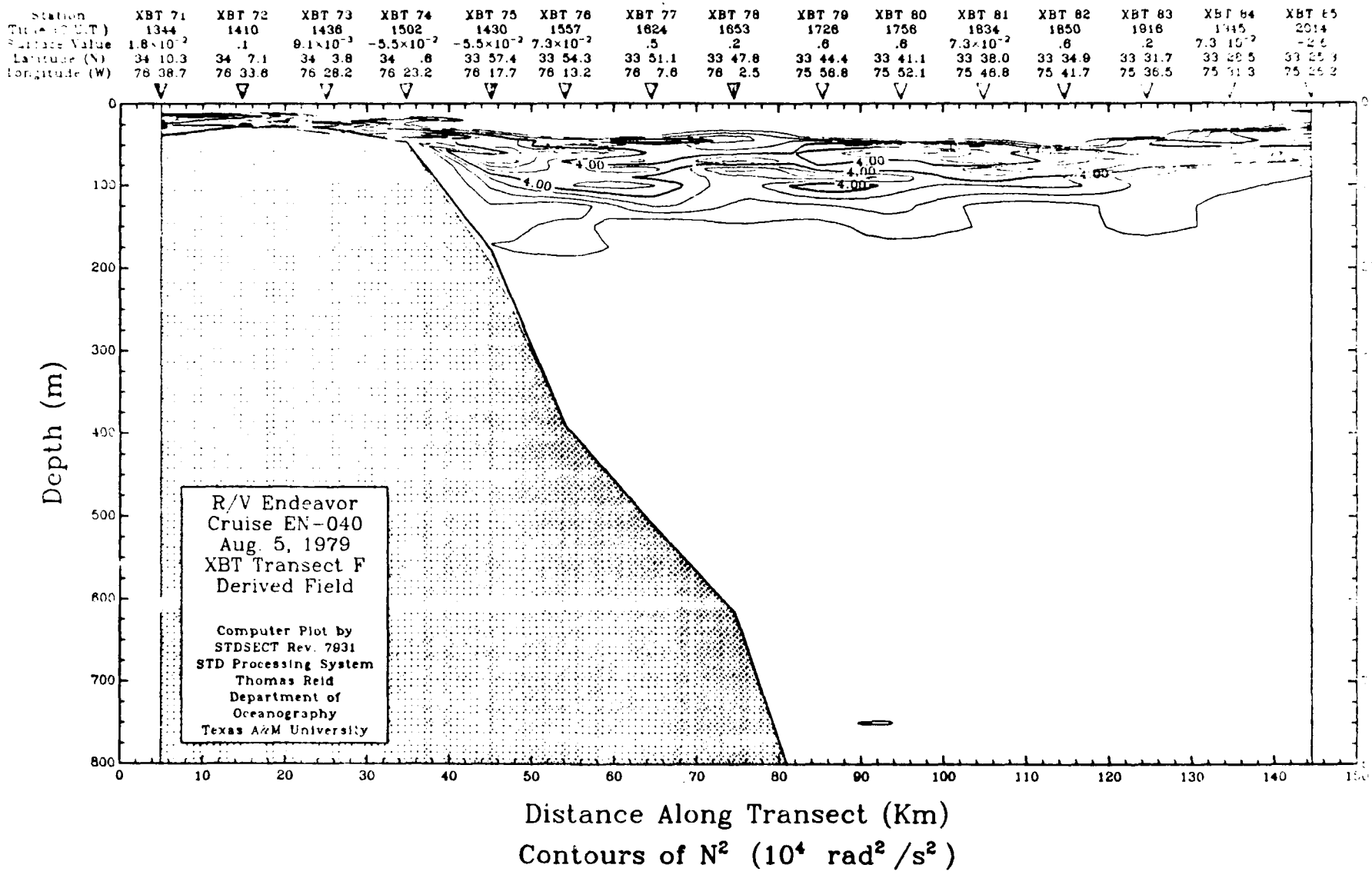


Figure 16 Section contours of temperature and derived salinity, sigma-t and N^2 fields for Transect F. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units and 0.5×10^{-4} rad^2 s^{-2}, respectively. This figure is continued on the next 3 pages.


Station XBT 71 XBT 72 XBT 73 XBT 74 XBT 75 XBT 76 XBT 77 XBT 78 XBT 79 XBT 80 XBT 81 XBT 82 XBT 83 XBT 84 XBT 85
(GMT) 1344 1410 1436 1502 1430 1557 1624 1653 1726 1756 1834 1850 1916 1945 2014
Surface Value 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3 36.3
Latitude (N) 34 10.3 34 7.1 34 3.8 34 .6 33 57.4 33 54.3 33 51.1 33 47.8 33 44.4 33 41.1 33 38.0 33 34.8 33 31.7 33 28.5 33 25.3
Longitude (W) 76 38.7 76 33.8 76 28.2 76 23.2 76 17.7 76 13.2 76 7.6 76 2.5 75 56.8 75 52.1 75 46.8 75 41.7 75 36.5 75 31.3 75 26.2
Depth (m)
0
100
200
300
400
500
600
700
800
36.5
36.0
35.5
R/V Endeavor
Cruise EN-040
Aug 5, 1979
XBT Transect F
Derived Field
Computer Plot by
STDSECT Rev 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0
10
20
30
40
50
60
70
80
90
100
110
120
130
Distance Along Transect (Km)
Contours of Salinity (‰)


Station XBT 71 XBT 72 XBT 73 XBT 74 XBT 75 XBT 76 XBT 77 XBT 78 XBT 79 XBT 80 XBT 81 XBT 82 XBT 83 XBT 84 XBT 85
Time (G.M.T.) 1344 1410 1436 1502 1430 1557 1624 1653 1726 1756 1834 1850 1918 1949 2014
Surface Value 23.3 23.3 23.2 23.2 23.2 23.2 23.1 23.1 23.1 23.1 23.1 23.1 23.1 23.2 23.1
Latitude (N) 34 10.3 34 7.1 34 3.8 34 .6 33 57.4 33 54.3 33 51.1 33 47.8 33 44.4 33 41.1 33 38.0 33 34.9 33 31.7 33 28.5 33 25.3
Longitude (W) 76 38.7 76 33.6 76 28.2 76 23.2 76 17.7 76 13.2 76 7.6 76 2.5 75 56.8 75 52.1 75 46.8 75 41.7 75 36.5 75 31.3 75 26.2
Depth (m)
0
100
200
300
400
500
600
700
800
24.0
25.0
26.0
27.0
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
R/V Endeavor
Cruise EN-040
Aug. 5, 1979
XBT Transect F
Derived Field
Computer Plot by
STDSECT Rev. 7831
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Distance Along Transect (Km)
Contours of σ_t (g/l)


Station
XBT 71
XBT 72
XBT 73
XBT 74
XBT 75
XBT 76
XBT 77
XBT 78
XBT 79
XBT 80
XBT 81
XBT 82
XBT 83
XBT 84
XBT 85
Time (G.M.T.)
1344
1410
1436
1502
1430
1557
1624
1653
1726
1756
1834
1850
1916
1945
2014
Latitude (N)
34 10.3
34 7.1
34 3.8
34 .6
33 57.4
33 54.3
33 51.1
33 47.8
33 44.4
33 41.1
33 38.0
33 34.9
33 31.7
33 28.5
33 25.3
Longitude (W)
76 38.7
76 33.6
76 28.2
76 23.2
76 17.7
76 13.2
76 7.6
76 2.5
75 56.8
75 52.1
75 46.8
75 41.7
75 36.5
75 31.3
75 26.2
4.00
Depth (m)
0
100
200
300
400
500
600
700
800
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
R/V Endeavor
Cruise EN-040
Aug. 5, 1979
XBT Transect F
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Distance Along Transect (Km)
Contours of N² (10⁴ rad²/s²)

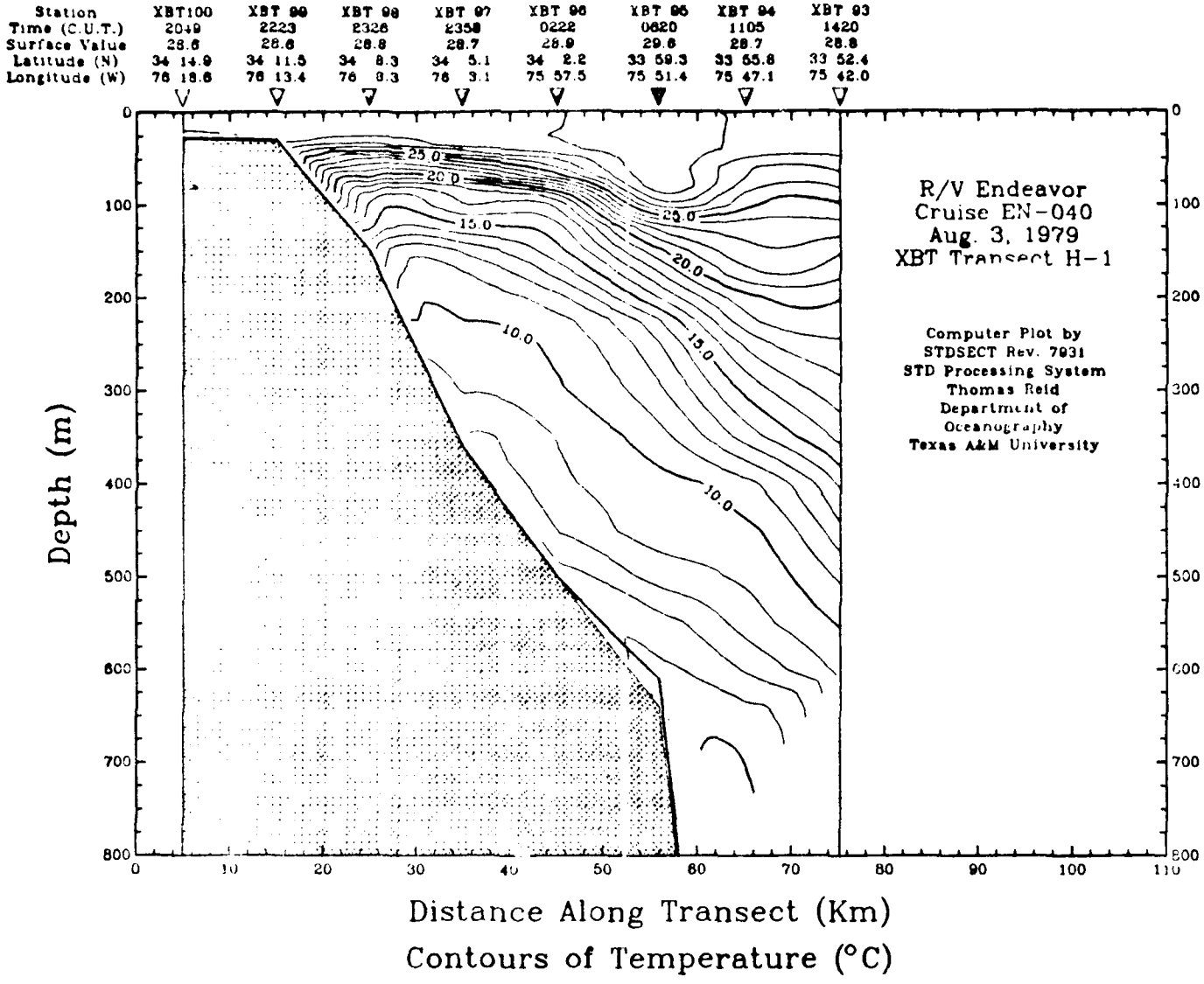
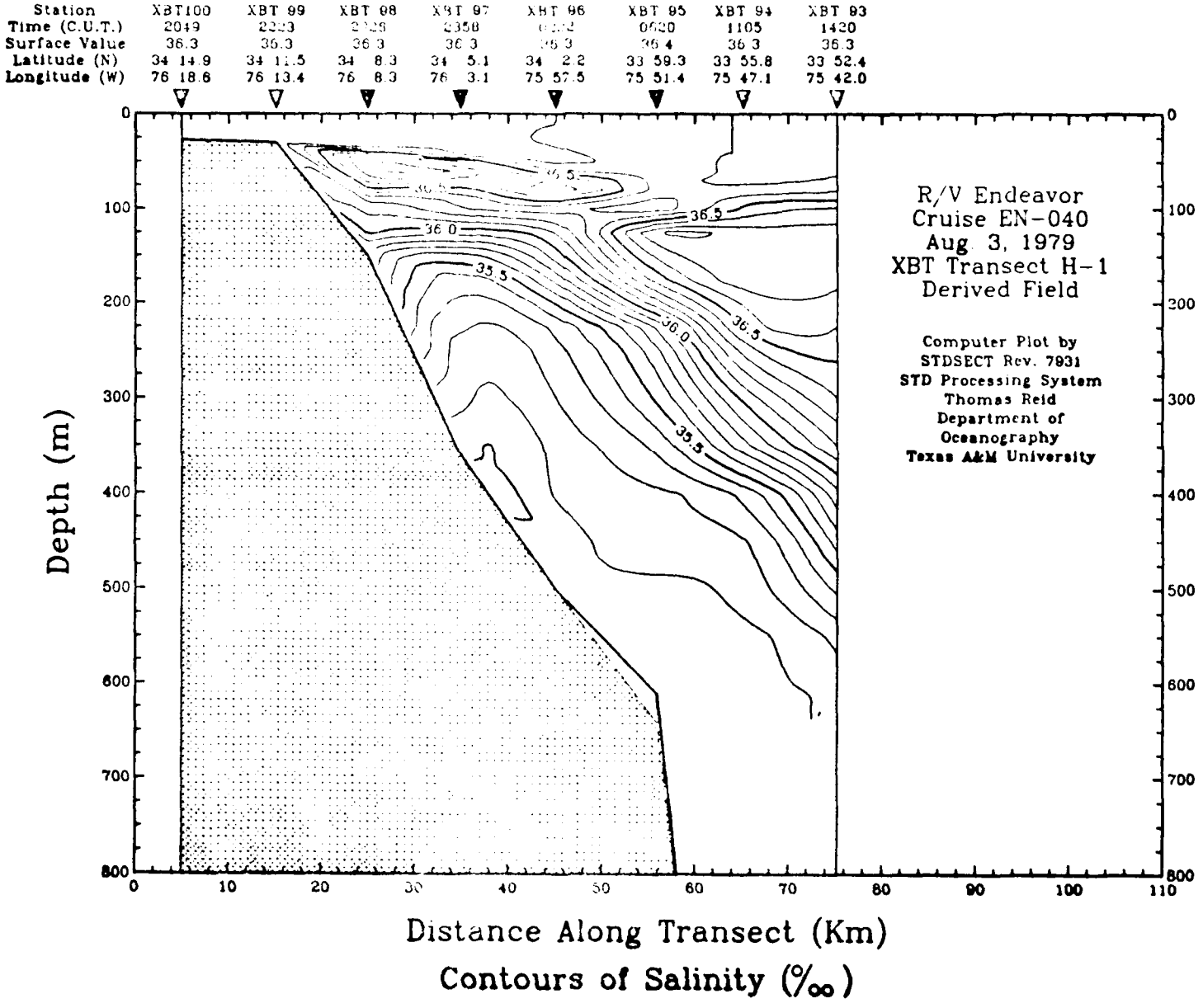
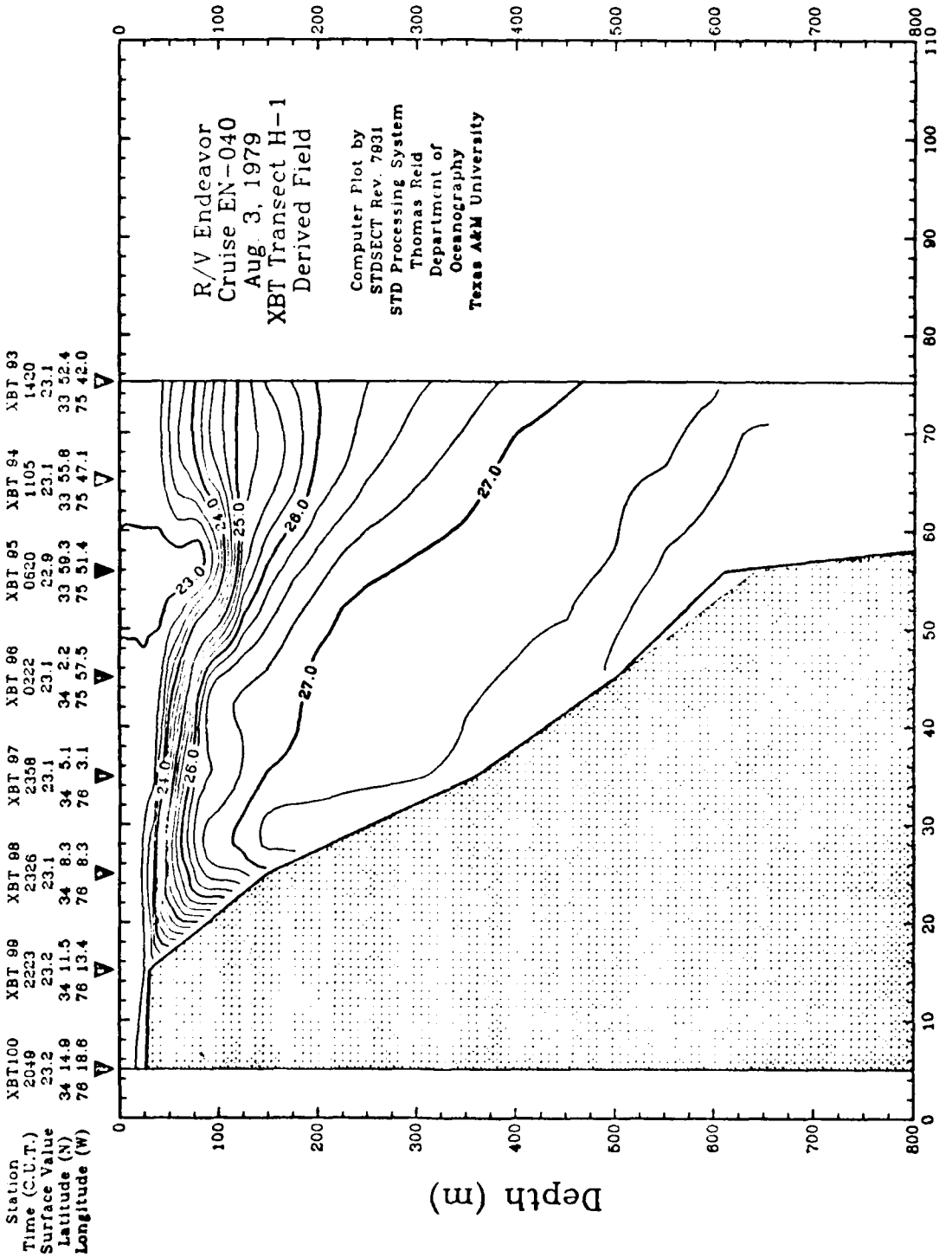
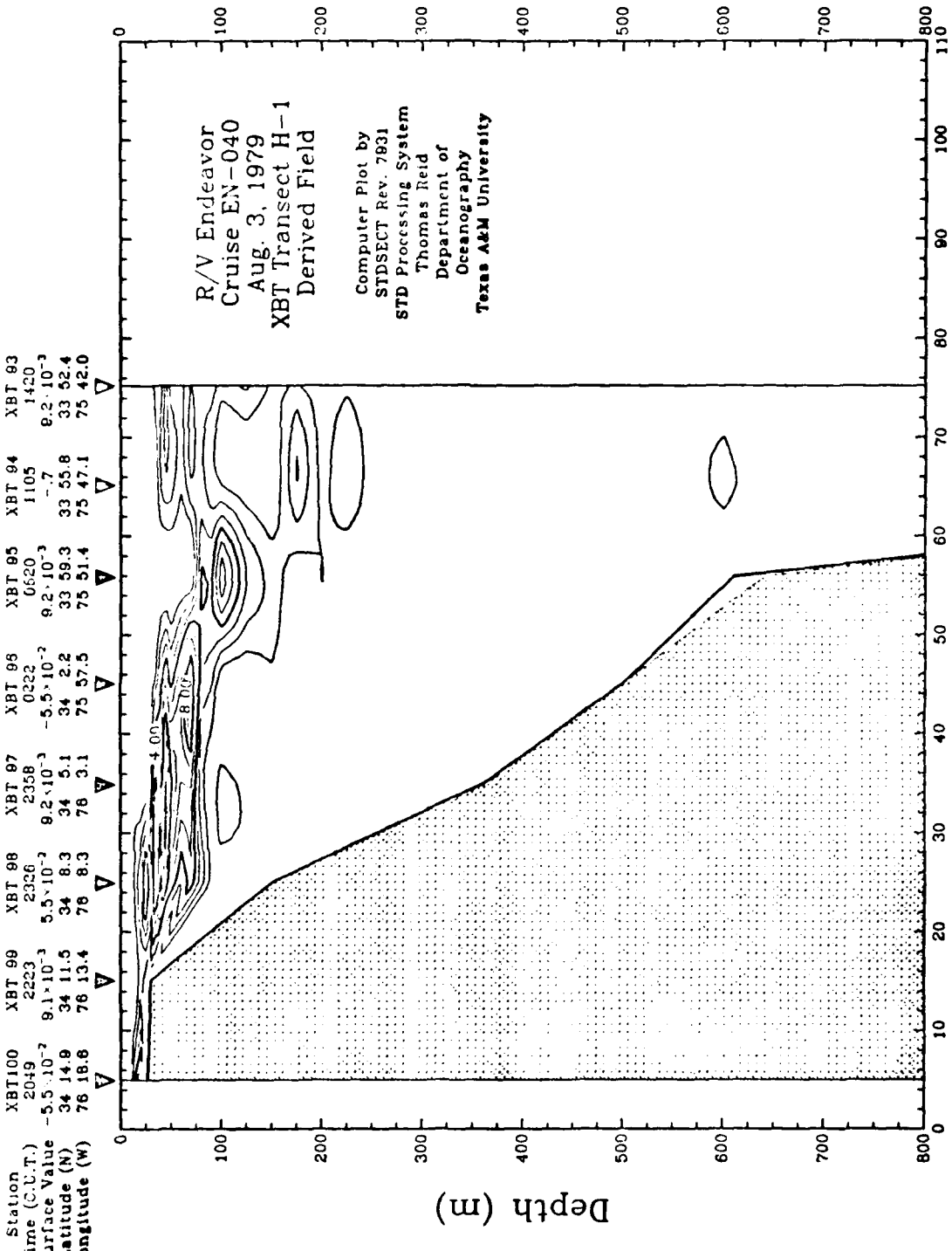


Figure 17. Section contours of temperature and derived salinity, sigma-t and N^2 fields for transect H-1. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units and 0.5×10^{-4} rad^2 s^{-2}, respectively. The figure is continued on the next 3 pages.


Station XBT100 XBT 99 XBT 98 XBT 97 XBT 96 XBT 95 XBT 94 XBT 93
Time (C.U.T.) 2049 2253 2358 0620 1105 1420
Surface Value 36.3 36.3 36.3 36.3 36.4 36.3 36.3
Latitude (N) 34 14.9 34 11.5 34 8.3 34 5.1 34 2.2 33 59.3 33 55.8 33 52.4
Longitude (W) 76 18.6 76 13.4 76 8.3 76 3.1 75 57.5 75 51.4 75 47.1 75 42.0
Depth (m)
0
100
200
300
400
500
600
700
800
36.5
36.0
35.5
R/V Endeavor
Cruise EN-040
Aug. 3, 1979
XBT Transect H-1
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0
10
20
30
40
50
60
70
80
90
100
110
Distance Along Transect (Km)
Contours of Salinity (‰)


R/V Endeavor
Cruise EN-040
Aug 3, 1979
XBT Transect H-1
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Station
Time (C.U.T.)
Surface Value
Latitude (N)
Longitude (W)
XBT100 2049 23.2 34 14.8 76 18.8
XBT 99 2223 23.2 34 11.5 76 13.4
XBT 98 2326 23.1 34 8.3 76 8.3
XBT 97 2358 23.1 34 5.1 76 3.1
XBT 96 0222 23.1 34 2.2 75 57.5
XBT 95 0620 22.9 33 59.3 75 51.4
XBT 94 1105 23.1 33 55.8 75 47.1
XBT 93 1420 23.1 33 52.4 75 42.0
23.0
24.0
25.0
26.0
27.0
Depth (m)
Distance Along Transect (Km)
Contours of σ_t (g/l)


R/V Endeavor
Cruise EN-040
Aug. 3, 1979
XBT Transect H-1
Derived Field
Computer Plot by
STDSECT Rev. 7831
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Station
Time (G.M.T.)
Surface Value
Latitude (N)
Longitude (W)
XBT100
2049
-5.5·10⁻²
34 14.8
76 18.8
XBT 99
2223
9.1·10⁻³
34 11.5
76 13.4
XBT 98
2326
5.5·10⁻²
34 8.3
76 8.3
XBT 97
2358
9.2·10⁻³
34 5.1
76 3.1
XBT 96
0222
-5.5·10⁻²
34 2.2
75 57.5
XBT 95
0620
9.2·10⁻³
33 59.3
75 51.4
XBT 94
1105
-.7
33 55.8
75 47.1
XBT 93
1420
9.2·10⁻³
33 52.4
75 42.0
4.00
8.00
Depth (m)
Distance Along Transect (Km)
Contours of N² (10⁴ rad²/s²)

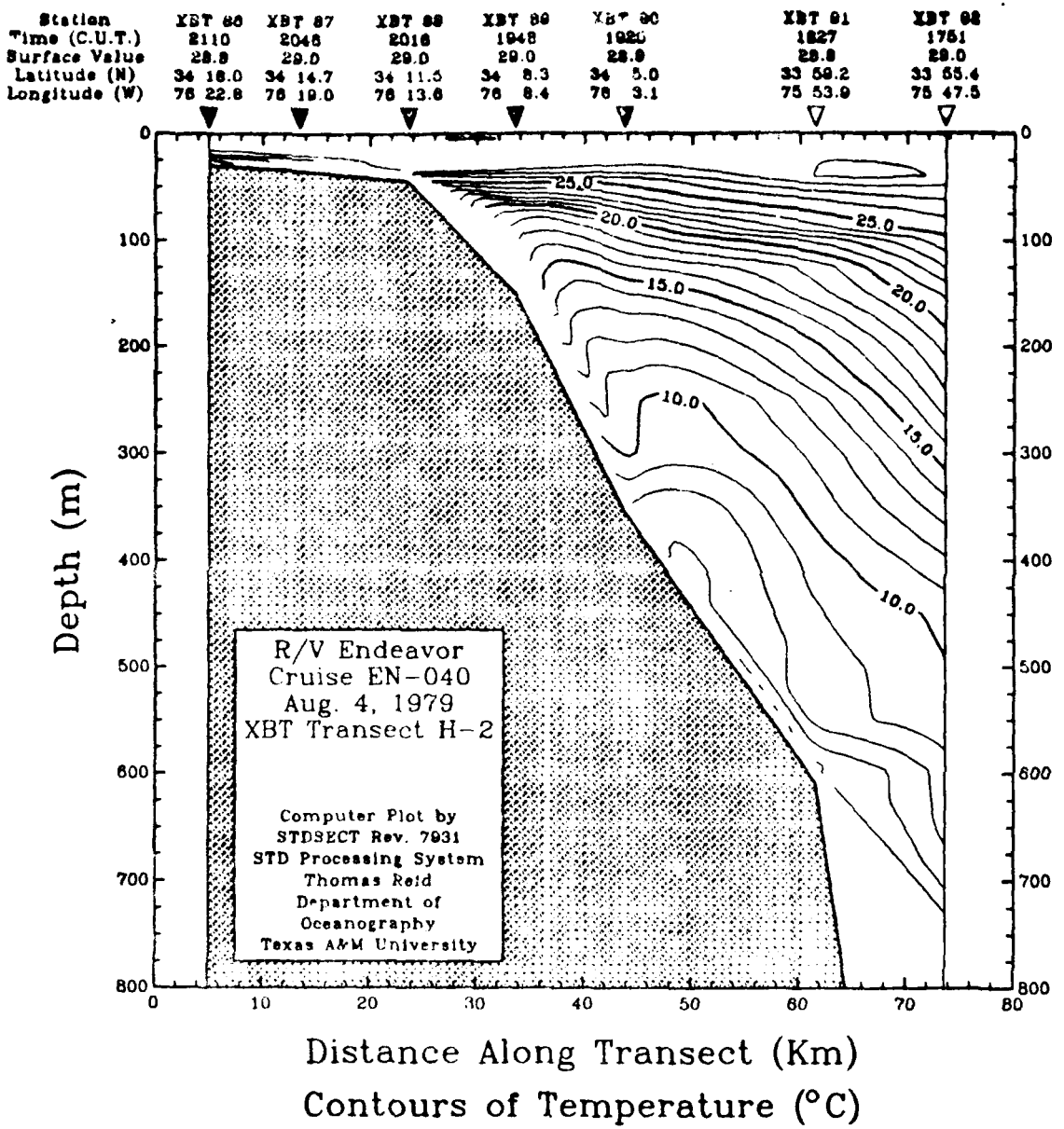
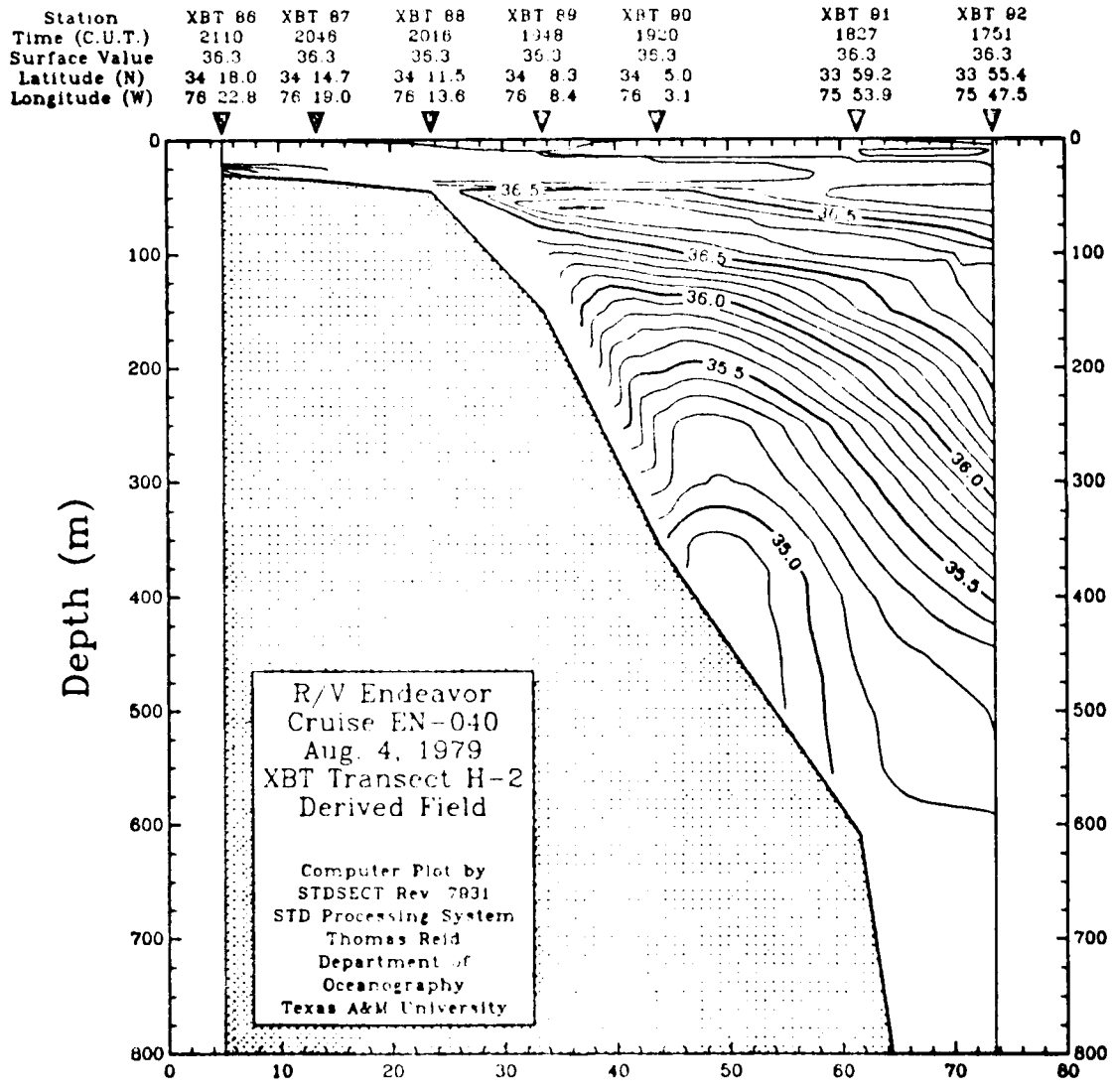
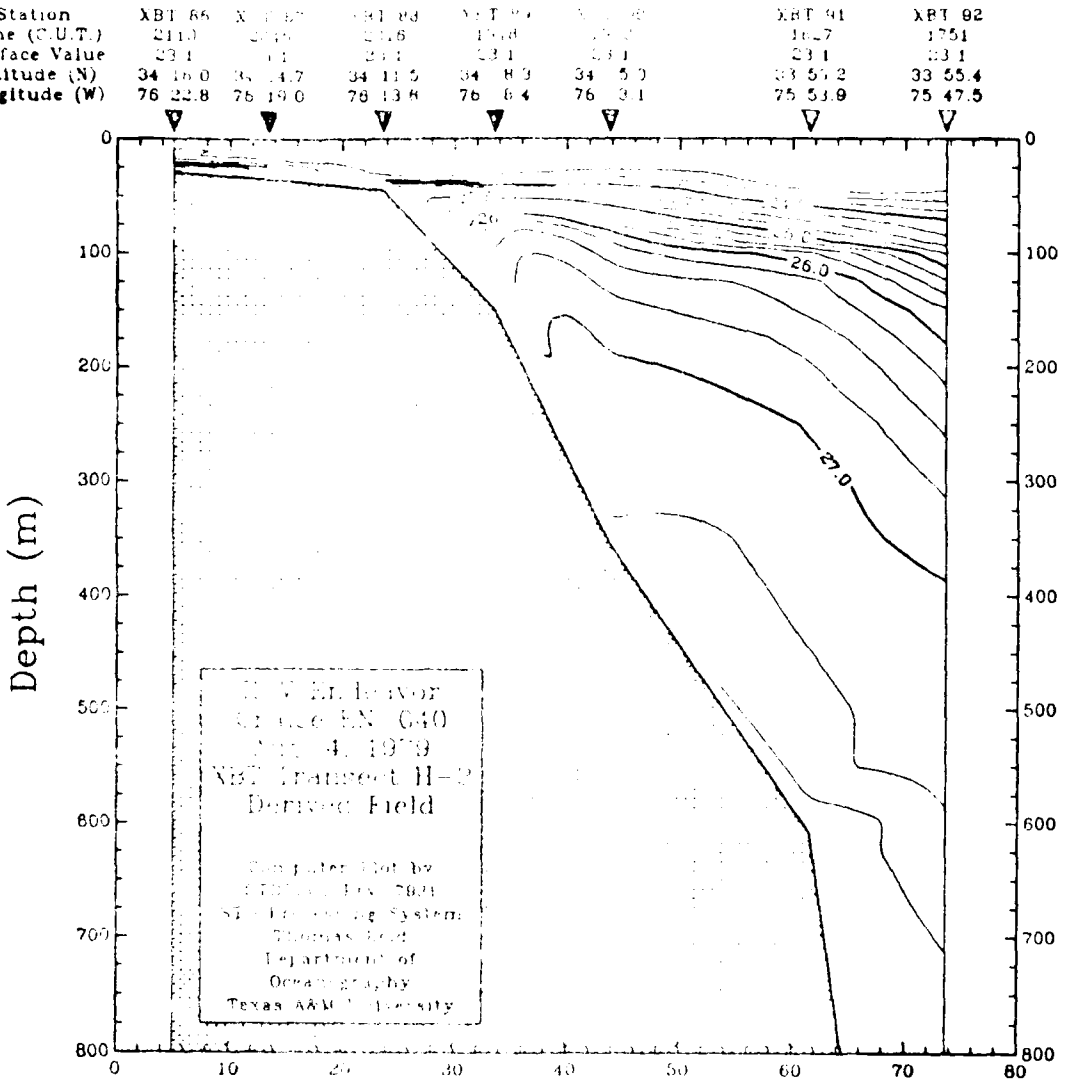
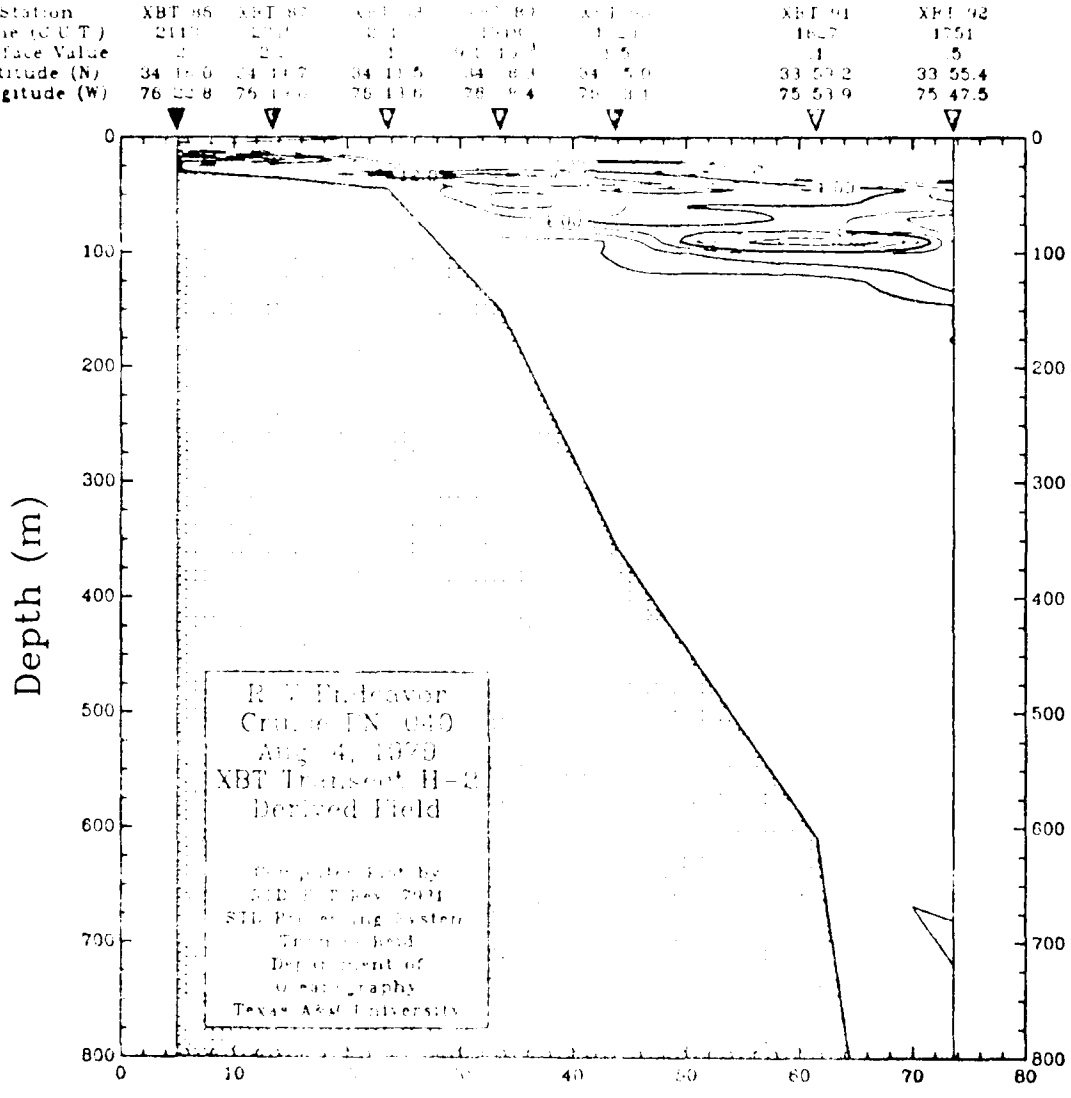


Figure 18. Section contours of temperature and derived salinity, sigma-t and N^2 fields for Transect H-2. Contour intervals are 1 °C, 0.1‰, 0.25 σ_t units and 0.5×10^{-4} rad^2 s^{-2}, respectively. This figure is continued on the next 3 pages.


Station
Time (C.U.T.)
Surface Value
Latitude (N)
Longitude (W)
XBT 86
2110
36.3
34 18.0
76 22.8
XBT 87
2046
36.3
34 14.7
76 19.0
XBT 88
2016
36.3
34 11.5
76 13.6
XBT 89
1948
36.3
34 8.3
76 8.4
XBT 90
1920
36.3
34 5.0
76 3.1
XBT 91
1827
36.3
33 59.2
75 53.9
XBT 92
1751
36.3
33 55.4
75 47.5
36.5
36.5
36.5
36.0
35.5
36.0
35.0
35.5
R/V Endeavor
Cruise EN-040
Aug. 4, 1979
XBT Transect H-2
Derived Field
Computer Plot by
STDSECT Rev 7831
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Depth (m)
0
100
200
300
400
500
600
700
800
0
10
20
30
40
50
60
70
80
Distance Along Transect (Km)
Contours of Salinity (‰)


Station
Time (G.M.T.)
Surface Value
Latitude (N)
Longitude (W)
XBT 91
XBT 92
33 55.2
33 55.4
75 53.9
75 47.5
Depth (m)
26.0
27.0
Distance Along Transect (Km)
Contours of σ_t (g/l)


Station
Time (G.M.T.)
Surface Value
Latitude (N)
Longitude (W)
XBT 91
XBT 92
33 53.2
33 55.4
75 53.9
75 47.5
Depth (m)
0
100
200
300
400
500
600
700
800
10
40
60
70
80
R/V Endeavor
Aug. 4, 1979
XBT Transect H-2
Derived Field
Texas A&M University
Distance Along Transect (Km)
Contours of N² (10⁴ rad² /s²)

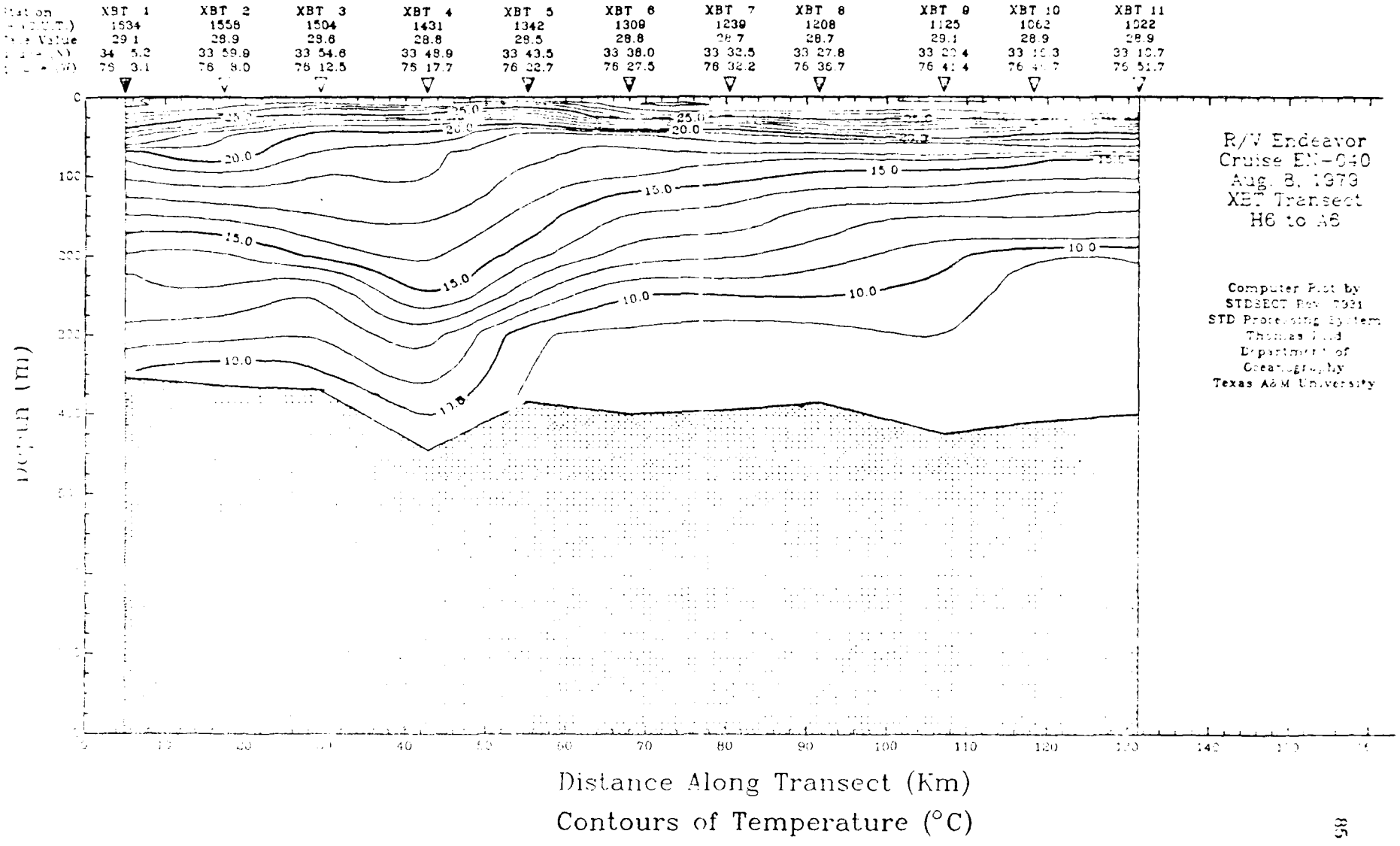
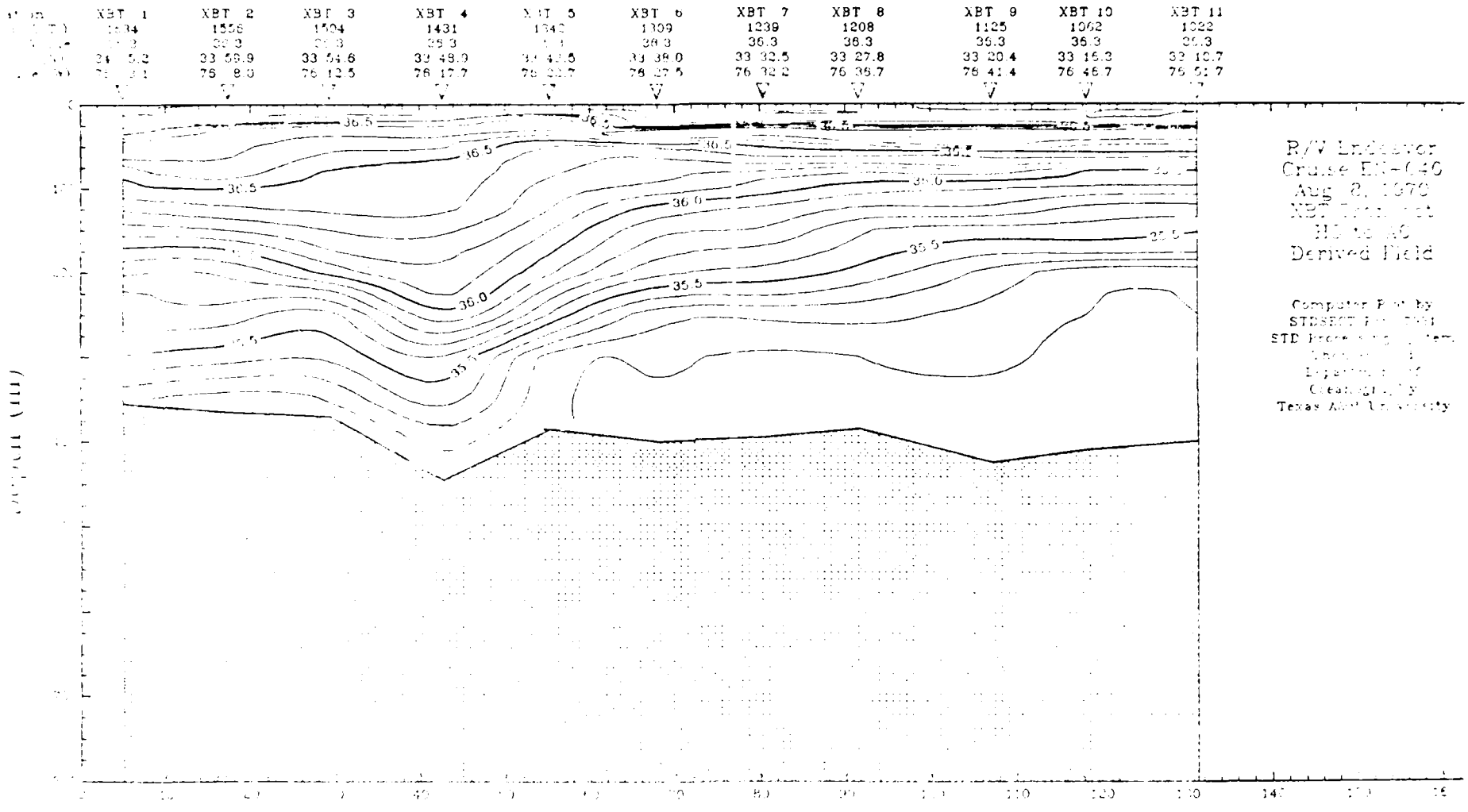
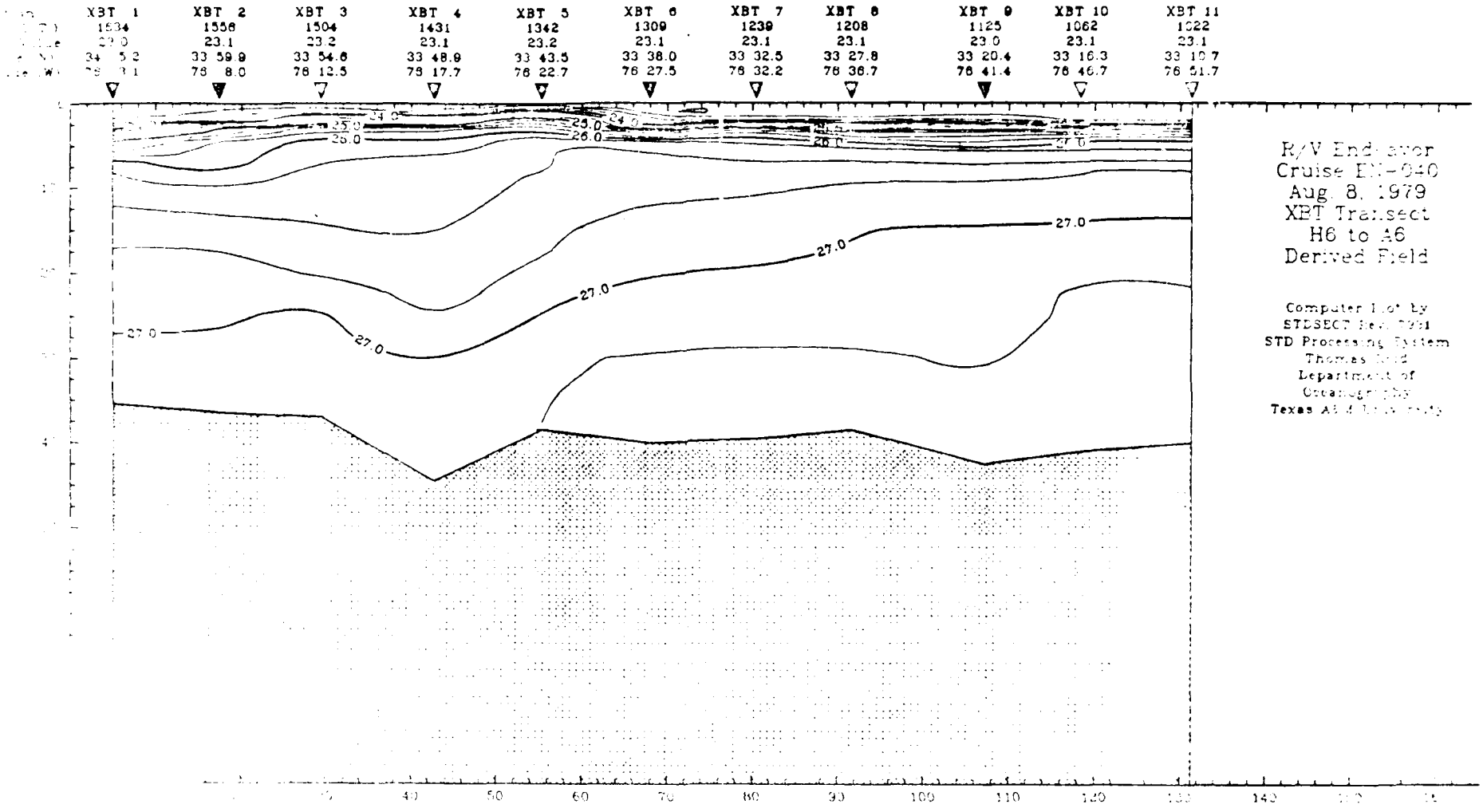


Figure 19. Section contours of temperature and derived salinity, sigma-t and N^2 fields for Transect H6 to A8. Contour intervals are 1 °C, 0.25‰, 0.25 σ_t units and $0.5 \cdot 10^{-4}$ rad^2/s^2, respectively. This figure is continued on the next 3 pages.



Contours of Salinity (‰)



Distance Along Transect (Km)

Contours of σ_t (g/l)

AD-A092 144 NORTH CAROLINA UNIV AT CHAPEL HILL F/G 8/10
THE GULF STREAM MEANDERS EXPERIMENT. HYDROGRAPHIC DATA REPORT. --ETC(U)
SEP 80 J M BANE, D A BROOKS, M J IGNASZEWSKI N00014-77-C-0354
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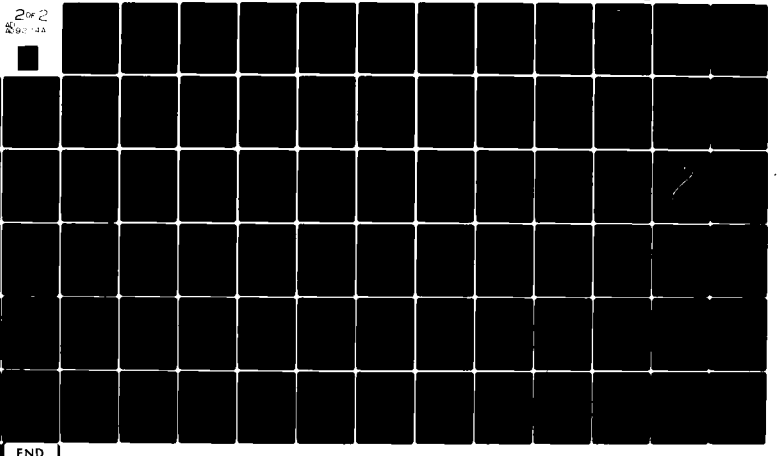
2 OF 2
AD A092 144



END
DATE FILMED
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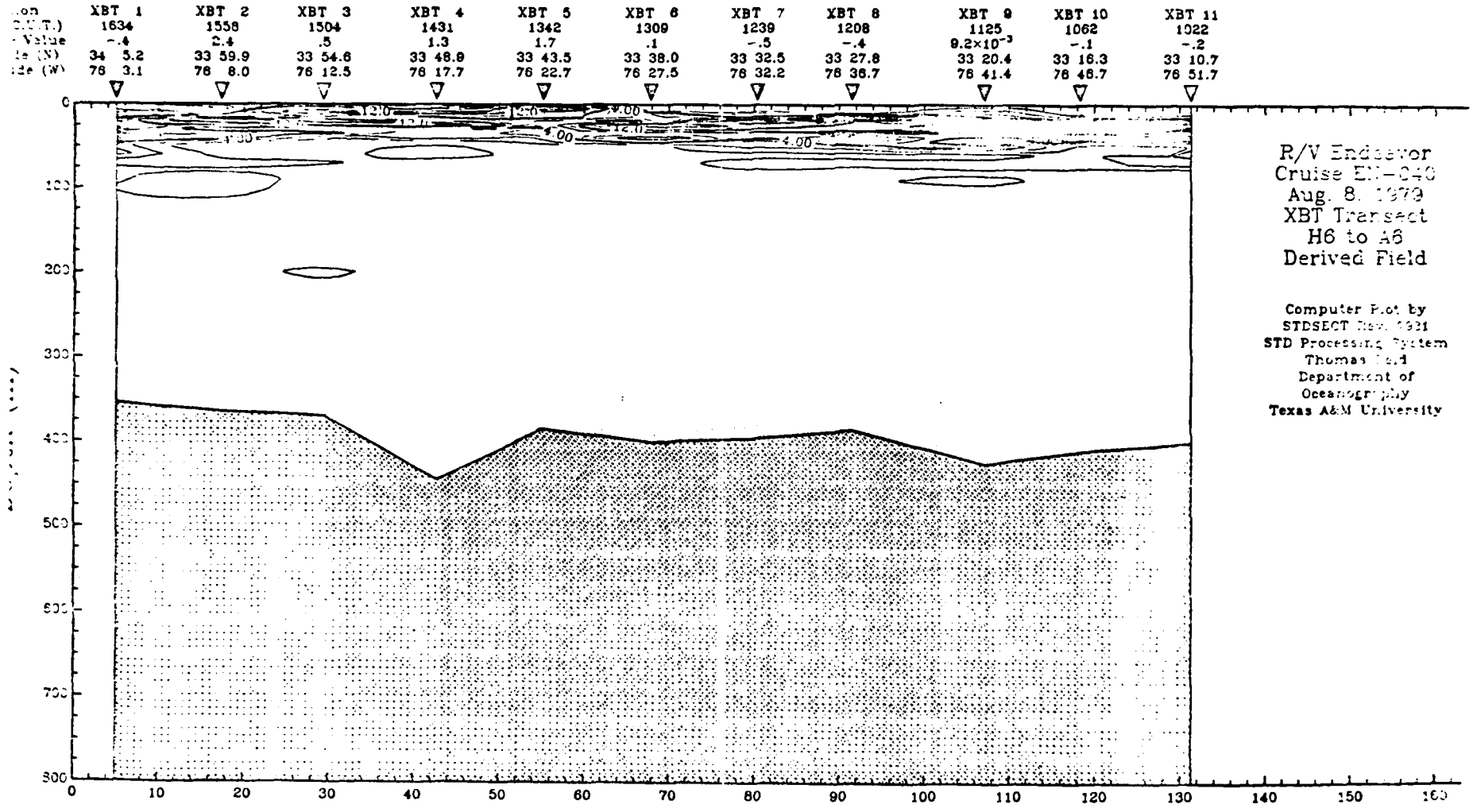


Distance Along Transect (Km)

Contours of N^2 (10^4 rad^2/s^2)

Part II

Cruise EN-045

The objective of cruise EN-045 was to retrieve the four current meter moorings that were deployed during EN-040 and to conduct a hydrographic survey of the Gulf Stream off North and South Carolina. The data gathered by the four current meter moorings are documented in another report (Bane, *et al.*, 1980).

Station	Date/Time (GMT)	Latitude (N)	Longitude (W)	Station Type	Cast Depth (m)	Discrete Samples
Mooring D	17 Nov 79/2030	33°55.4'	76°11.5'	retrieval	390	0
B03	18 Nov 79/0437	33°32.6'	76°55.9'	XBT	86	Bucket
B04	0505	33°29.1'	76°50.8'	XBT	211	Bucket
B04-A	0515	33°27.6'	76°48.7'	XBT	240	Bucket
B05	0525	33°26.3'	76°47.1'	XBT	275	Bucket
B05-A	0544	33°24.3'	76°43.9'	XBT	318	Bucket
B06	0600	33°21.9'	76°41.4'	XBT	404	Bucket
B06-A	0604	33°20.9'	76°40.8'	XBT	420	Bucket
B07	0622	33°19.9'	76°37.9'	XBT	475	Bucket
B07-A	0634	33°18.4'	76°35.6	XBT	523	Bucket
B08	0647	33°16.6'	76°33.2'	XBT	570	Bucket
B08-A	0657	33°15.0'	76°31.5'	XBT	602	Bucket
B09	0710	33°13.5'	76°29.0'	XBT	645	Bucket
B09-A	0725	33°12.0'	76°26.7'	XBT	688	Bucket
B10	0740	33°10.3'	76°23.9'	XBT	742	Bucket
B11	0805	33°07.1'	76°20.0'	XBT	750	Bucket
B12	0830	33°05.0'	76°15.2'	XBT	800	Bucket
B13	0852	33°01.9'	76°11.5'	XBT	800	Bucket
Mooring B	1145	33°21.9'	76°41.3'	retrieval	410	0
Mooring A	1340	33°28.2'	76°52.1'	retrieval	200	0
Mooring C	1650	33°51.1'	76°14.7'	retrieval	400	0
G04	18 Nov 79/2103	34°03.5'	76°16.5'	STD	75	Bucket; 2
G05	2230	34°00.5'	76°12.0'	STD	325	Bucket; 4
G06	2359	33°57.2'	76°07.6'	STD	407	Bucket; 4
G07	19 Nov 79/0153	33°54.0'	76°03.0'	STD	500	Bucket; 3
G08	0854	33°50.8	75°58.5'	STD	555	Bucket; 4
G09	0645	33°47.5'	75°54.0'	STD	570	Bucket; 4
G10	1037	33°44.6'	75°49.3'	STD	1012	Bucket; 4
G11	1248	33°41.2'	75°45.0'	STD	1000	Bucket; 4

Table 2. EN-045 Station Summary. This table is continued on the next 3 pages.

Station	Date/Time (GMT)	Latitude (N)	Longitude (W)	Station Type	Cast Depth (m)	Discrete Samples
GA02	19 Nov 79/1515	33°35.1'	75°47.8'	XBT	450	0
GA03	1545	33°30.1'	75°50.6'	XBT	450	0
GA04	1615	33°25.1;	75°53.4'	XBT	450	0
GA05	1645	33°19.9'	75°56.4'	XBT	450	0
GA06	1715	33°14.8'	75°59.5'	XBT	450	0
GA07	1745	33°09.5'	76°02.6'	XBT	450	0
GA08	1815	33°04.3'	76°05.8'	XBT	450	0
GA09	1845	32°59.3'	76°08.8'	XBT	450	0
GA10	1914	32°53.9'	76°11.7'	XBT	450	0
GA11	1945	32°49.1'	76°15.8'	XBT	450	0
A14	19 Nov 79/2007	32°47.6'	76°17.4'	STD	1000	Bucket; 4
A13	2212	32°50.7'	76°21.7'	STD	1030	Bucket; 4
A12	20 Nov 79/0019	32°53.9'	76°26.0'	STD	930	Bucket; 4
A09-A	20 Nov 79/0603	33°02.9'	76°36.4'	XBT	665	Bucket
A09	0619	33°03.4'	76°35.9'	XBT	638	Bucket
A08-A	0635	33°05.9'	76°41.6'	XBT	588	Bucket
A08	0653	33°06.6'	76°44.0'	XBT	540	Bucket
A07-A	0715	33°08.9'	76°46.6'	XBT	490	Bucket
A07	0727	33°09.7'	76°48.5'	XBT	460	Bucket
A06-A	0743	33°11.5'	76°50.7'	XBT	411	Bucket
A06	0757	33°13.0'	76°53.0'	XBT	360	Bucket
A05-A	0810	33°14.5'	76°55.1'	XBT	311	Bucket
A05	0824	33°16.0'	76°57.5'	XBT	300	Bucket
A04-A	0841	33°18.2'	77°00.0'	XBT	260	Bucket
A04	0852	33°19.5'	77°02.3'	XBT	214	Bucket
A03	0918	33°22.5'	77°06.0'	XBT	125	Bucket
A02	0944	33°25.7'	77°10.7'	XBT	40	Bucket
A01	0909	33°28.9'	77°15.1'	XBT	35	Bucket
A00	0936	33°31.9'	77°20.0'	XBT	32	Bucket

Station	Date/Time (GMT)	Latitude (N)	Longitude (W)	Station Type	Cast Depth (m)	Discrete Samples
Z01	20 Nov 79/1600	32°57.6'	78°06.3'	STD	30	Bucket; 3
Z02	1715	32°56.6'	78°03.1'	STD	95	Bucket; 4
Z03	1907	32°53.1'	77°58.1'	STD	145	Bucket; 4
Z04	2058	32°49.1'	77°52.7'	STD	197	Bucket; 4
Z05	2242	32°46.5'	77°48.5'	STD	197	Bucket; 4
Z06	21 Nov 79/0002	32°43.0'	77°44.0'	XBT	261	Bucket
Z07	0038	32°40.1'	77°39.3'	STD	310	Bucket; 4
Z08	0208	32°36.5'	77°35.5'	XBT	440	0
Z09	0238	32°34.2'	77°30.7'	STD	450	Bucket; 4
Z10	0424	32°31.0'	77°27.9'	XBT	450	0
Z11	0502	32°28.1'	77°22.2'	STD	600	Bucket; 4
Z12	0715	32°24.9'	77°18.1'	XBT	686	0
Z13	0757	32°21.2'	77°14.4'	STD	721	Bucket; 4
Z14	0852	32°18.5'	77°08.5'	XBT	450	Bucket
Z15	1021	32°15.0'	77°05.1'	STD	745	Bucket; 4
X11	21 Nov 79/2114	31°51.5'	77°57.5'	STD,XBT	580	Bucket; 4
X10	2300	31°58.6'	77°59.4'	STD,XBT	585	Bucket; 4
X09	22 Nov 79/0059	32°04.9'	78°01.5'	STD,XBT	527	Bucket; 4
X08	0311	32°11.6'	78°02.1'	STD,XBT	420	Bucket; 4
X07	0514	32°18.2'	78°04.1'	STD,XBT	373	Bucket; 4
X06	0715	32°25.4'	78°06.1'	STD,XBT	315	Bucket; 4
X05	0918	32°31.3'	78°07.8'	STD,XBT	240	Bucket; 4
X04	1028	32°37.5'	78°10.2'	STD,XBT	195	Bucket; 3
X03	1103	32°44.0'	78°12.0'	STD,XBT	160	Bucket; 3
X02	1328	32°51.0'	78°13.3'	STD,XBT	130	Bucket; 3

Station	Date/Time (GMT)	Latitude (N)	Longitude (W)	Station Type	Cast Depth (m)	Discrete Samples
W01	22 Nov 79/ 1534	32°54.7'	77°50.5'	XBT	198	0
W02	1604	32°58.3'	77°43.9'	XBT	187	0
W03	1634	33°01.8'	77°37.2'	XBT	189	0
W04	1704	33°05.3'	77°30.5'	XBT	187	0
W05	1734	33°08.9'	77°23.9'	XBT	160	0
W06	1804	33°12.7'	77°17.3'	XBT	133	0
W07	1834	33°16.6'	77°10.5'	XBT	158	0
W08	1904	33°21.3'	77°04.0'	XBT	161	0
W09	1934	33°26.6'	76°57.9'	XBT	164	0
W10	2006	33°32.0'	76°51.0'	XBT	160	0
W11	2034	33°36.8'	76°44.1'	XBT	176	0
W12	2105	33°42.3'	76°37.5'	XBT	177	0
W13	2135	33°47.7'	76°30.7'	XBT	182	0
W14	2204	33°52.9'	76°24.0'	XBT	188	0
W15	2234	33°58.3'	76°17.4'	XBT	200	0

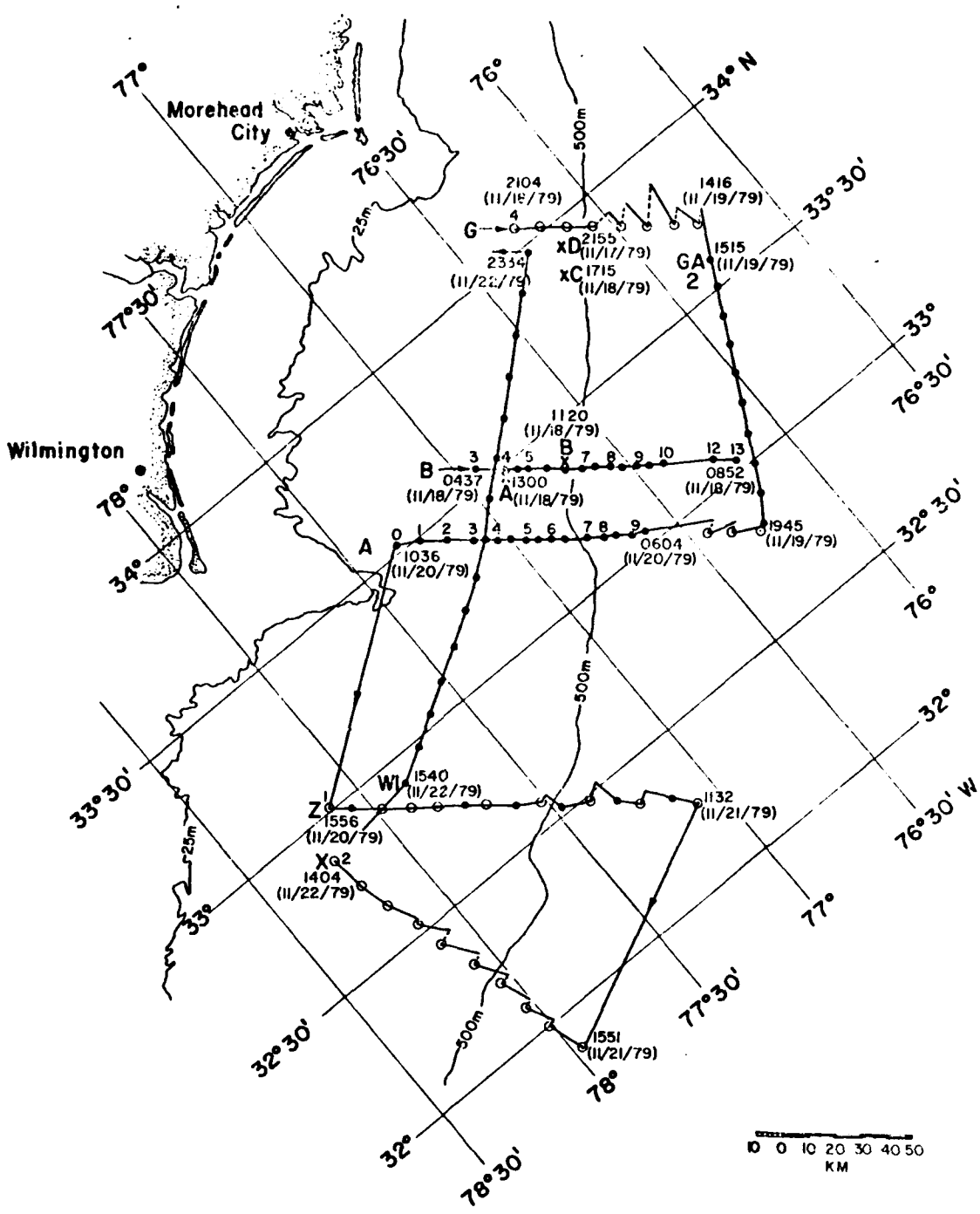


Figure 20. Detailed ship tracks for cruise EN-045. The solid dots represent XBT stations. The circles represent STD stations; the on-station drift is shown by the dotted lines. The crosses represent current meter mooring locations.

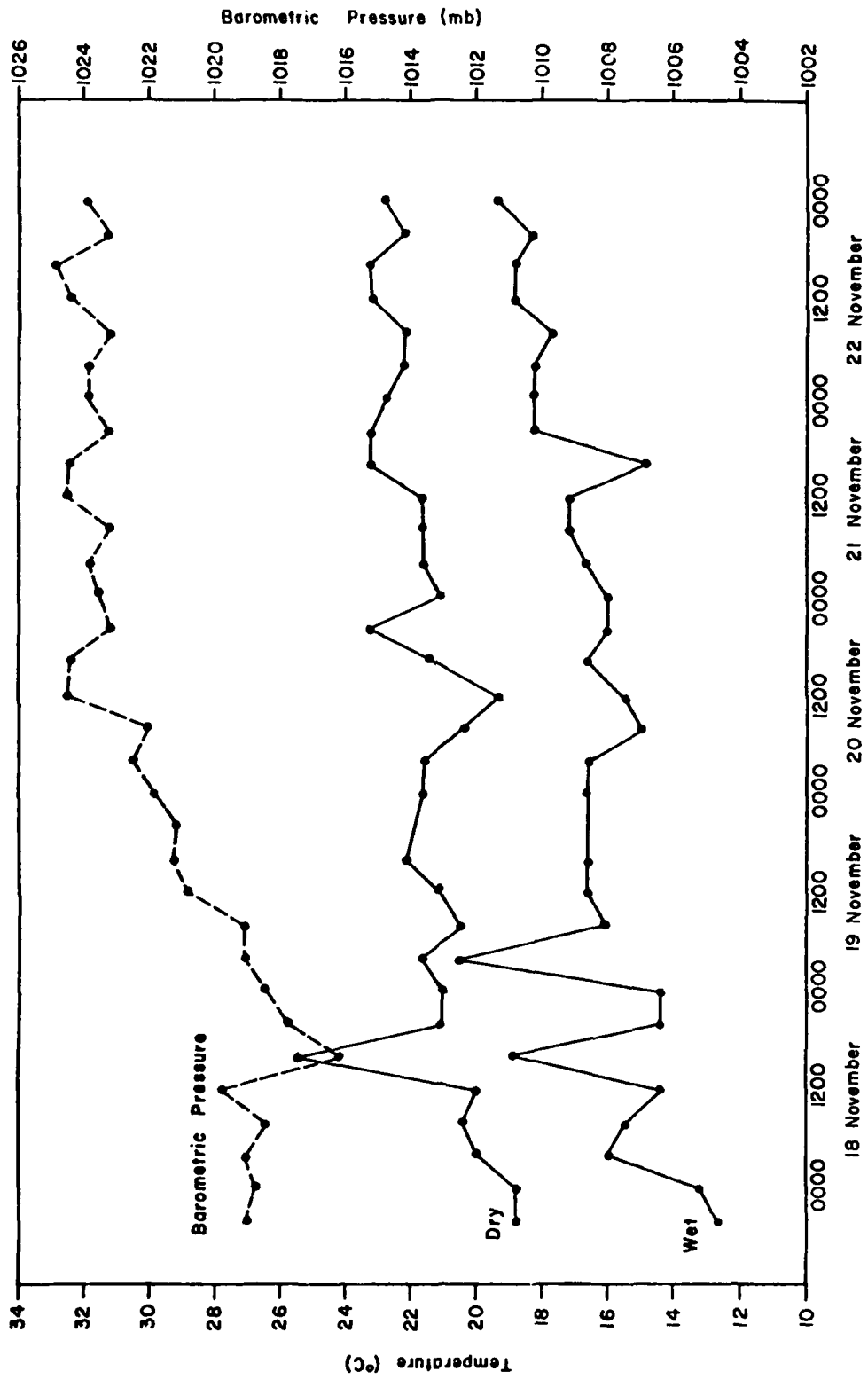


Figure 21. Meteorological parameters recorded aboard ship during cruise EN-045.

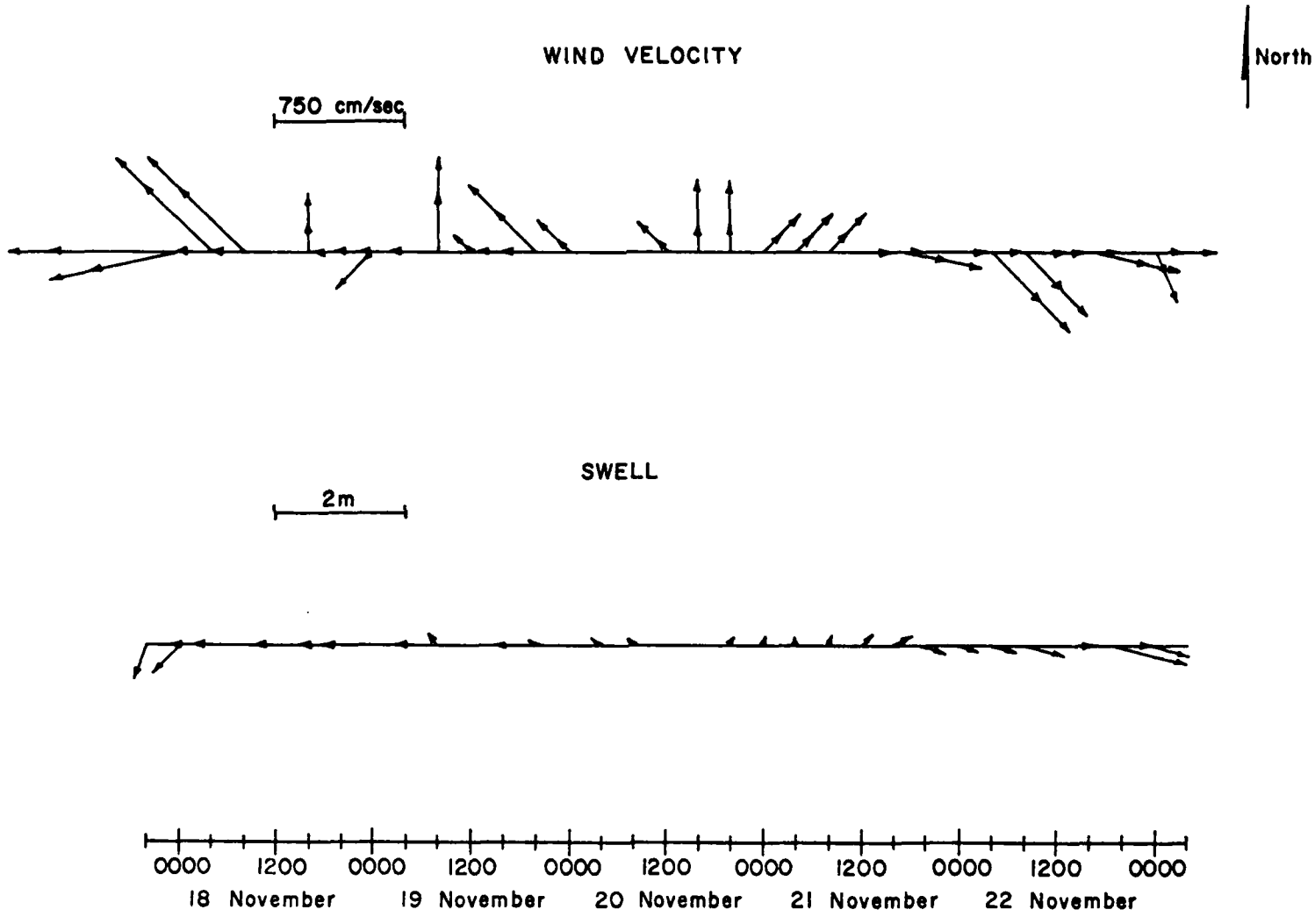


Figure 22. Wind and swell observations recorded aboard ship during cruise EN-040. The vectors point in the direction from which the wind was blowing, corrected for ship motion. The double arrowheads show the range of the recorded Beaufort scale. The swell vectors point in the direction from which the swell came.

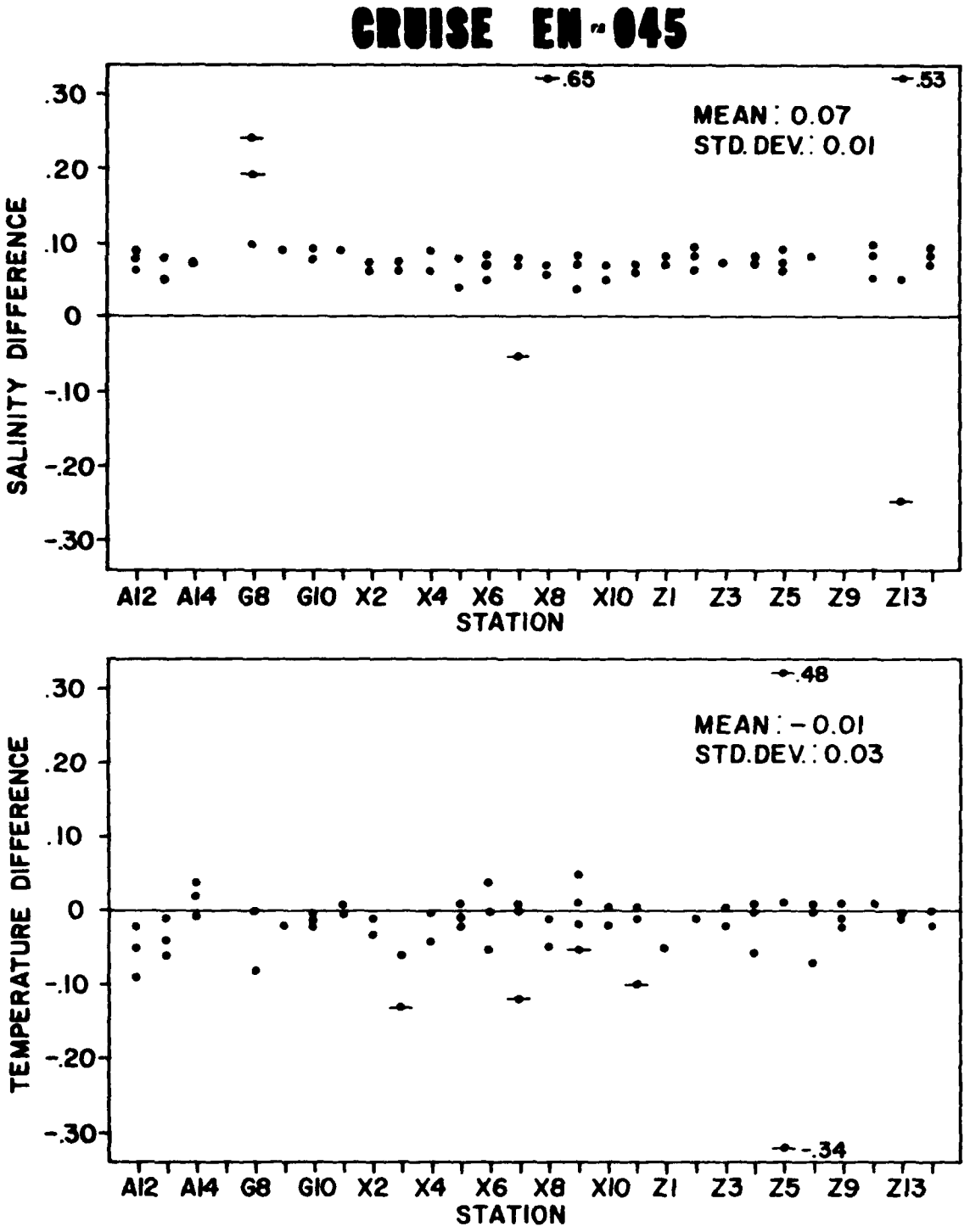


Figure 23. STD-measured minus bottle calibration values of salinity and temperature for EN-045. STD salinity values were corrected by subtracting 0.07‰; no temperature correction was applied. Erroneous data points are flagged by horizontal bars.

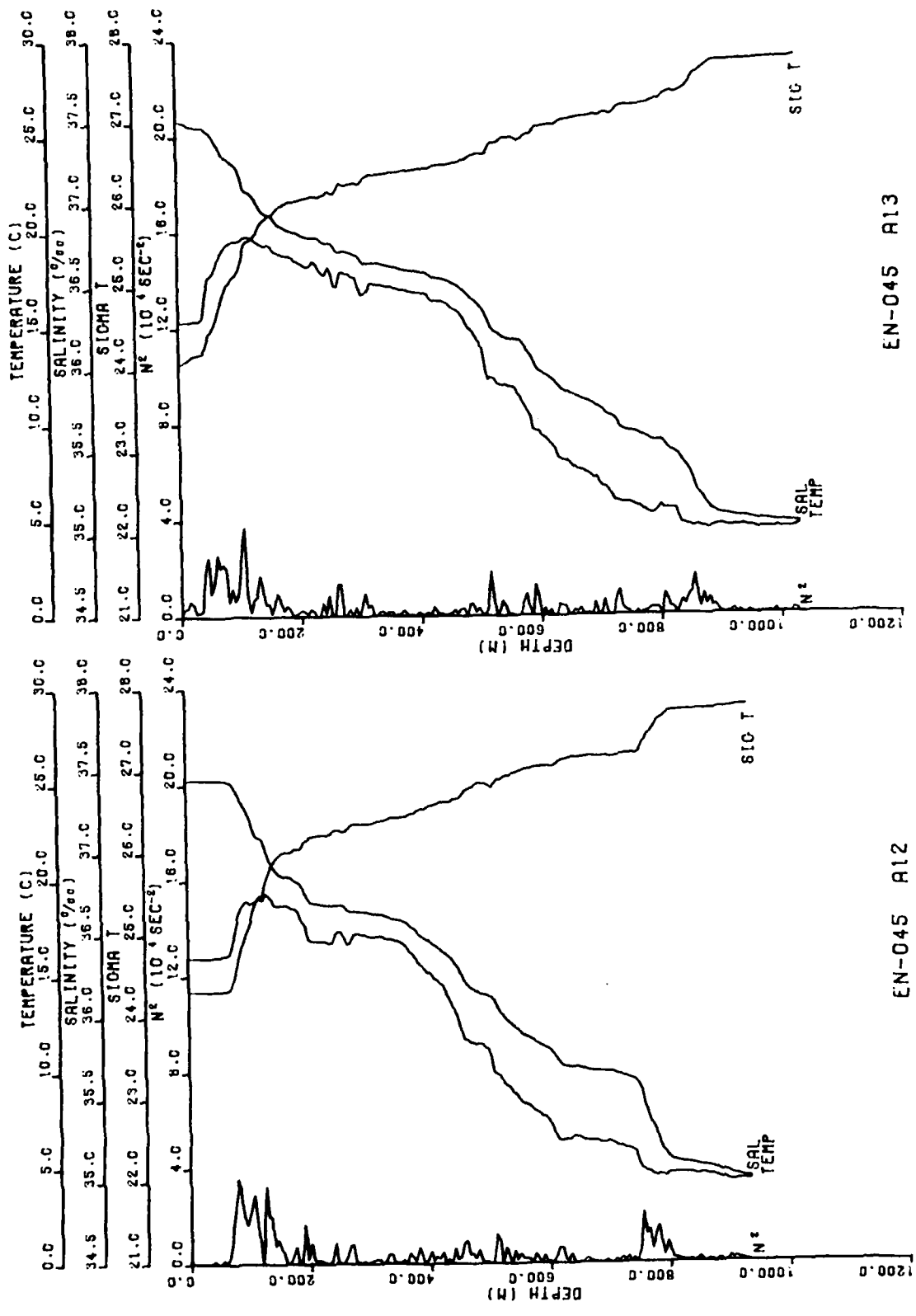
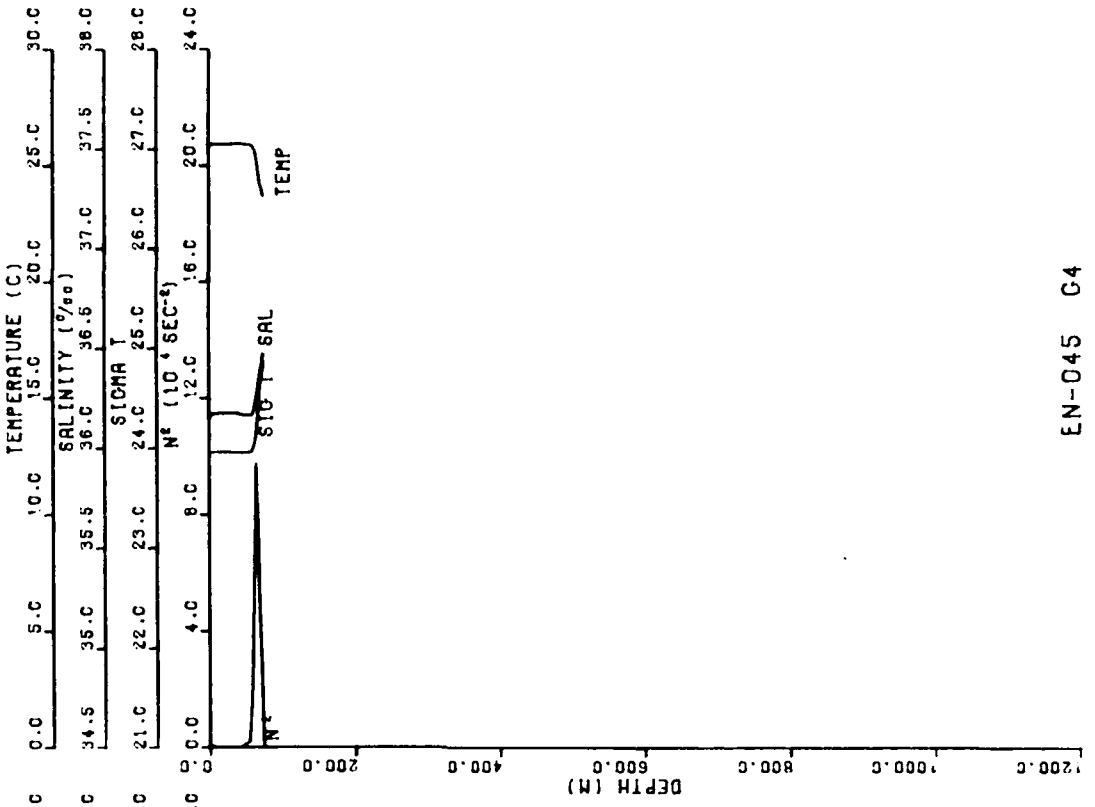
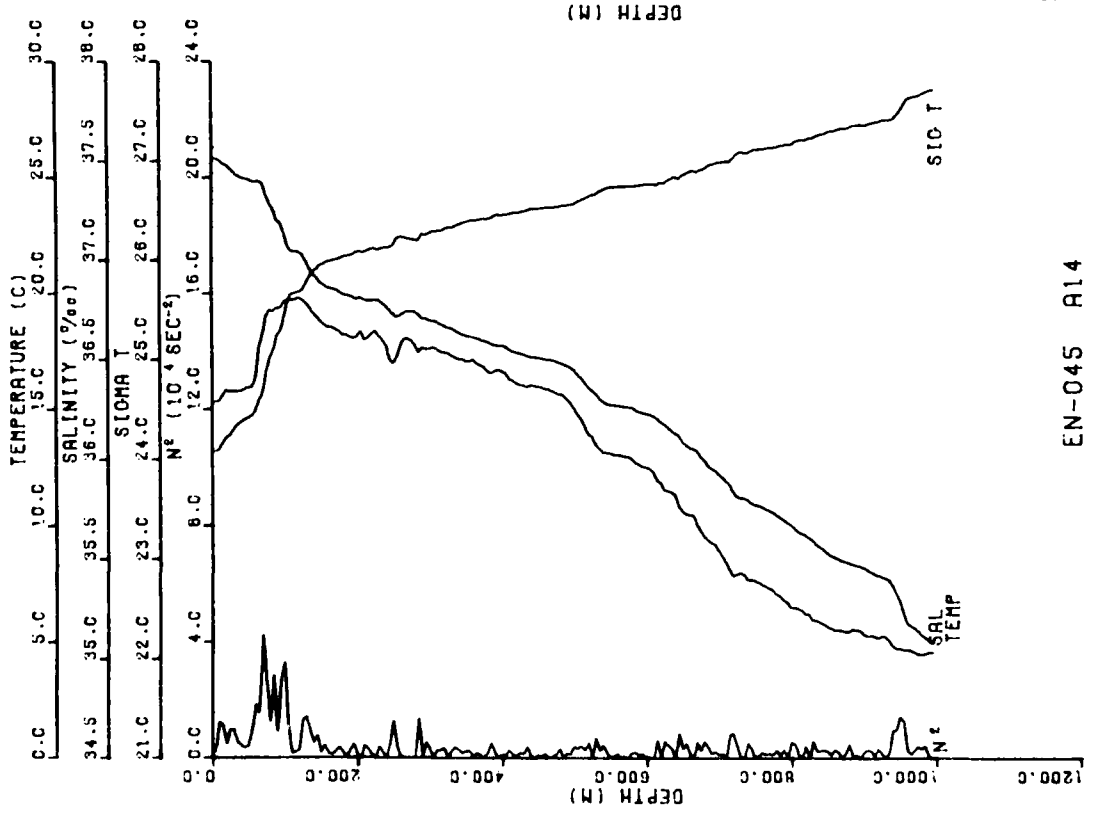


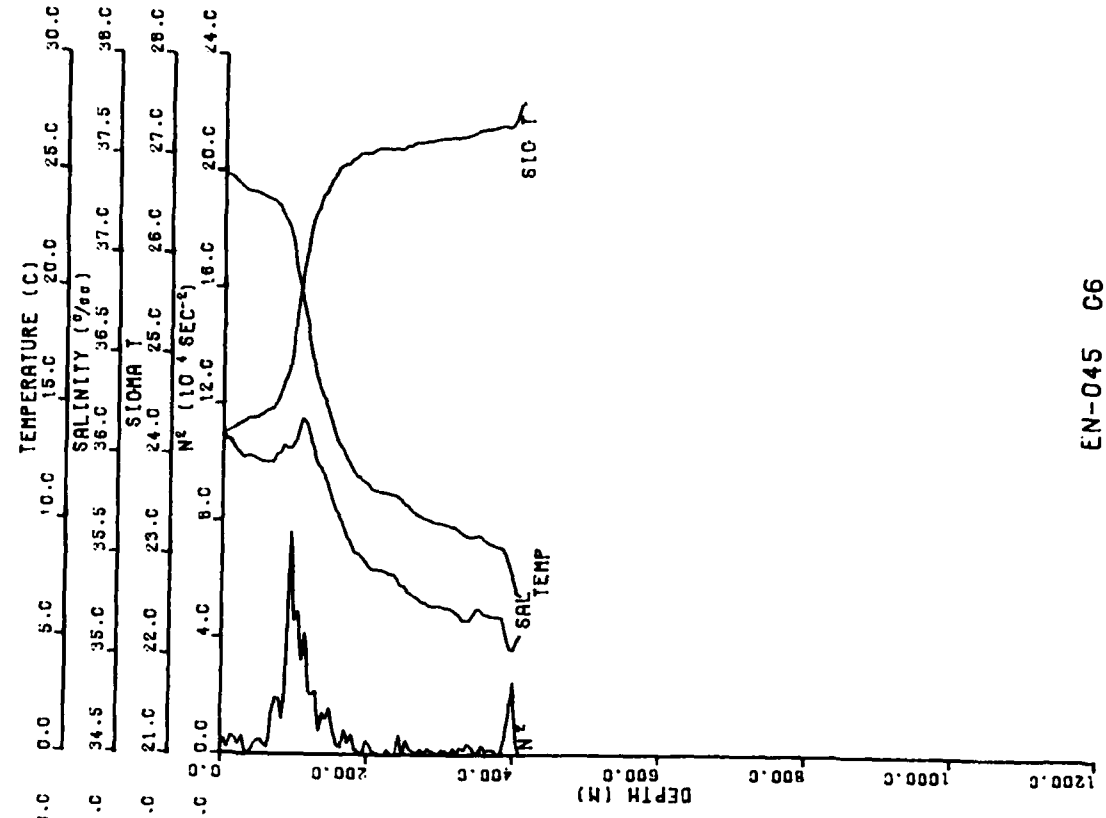
Figure 24. Individual STD station profiles of temperature, salinity and derived quantities sigma-t and N^2 for EN-045. Station locations are shown in Figure 20. This figure is continued on the next 15 pages.



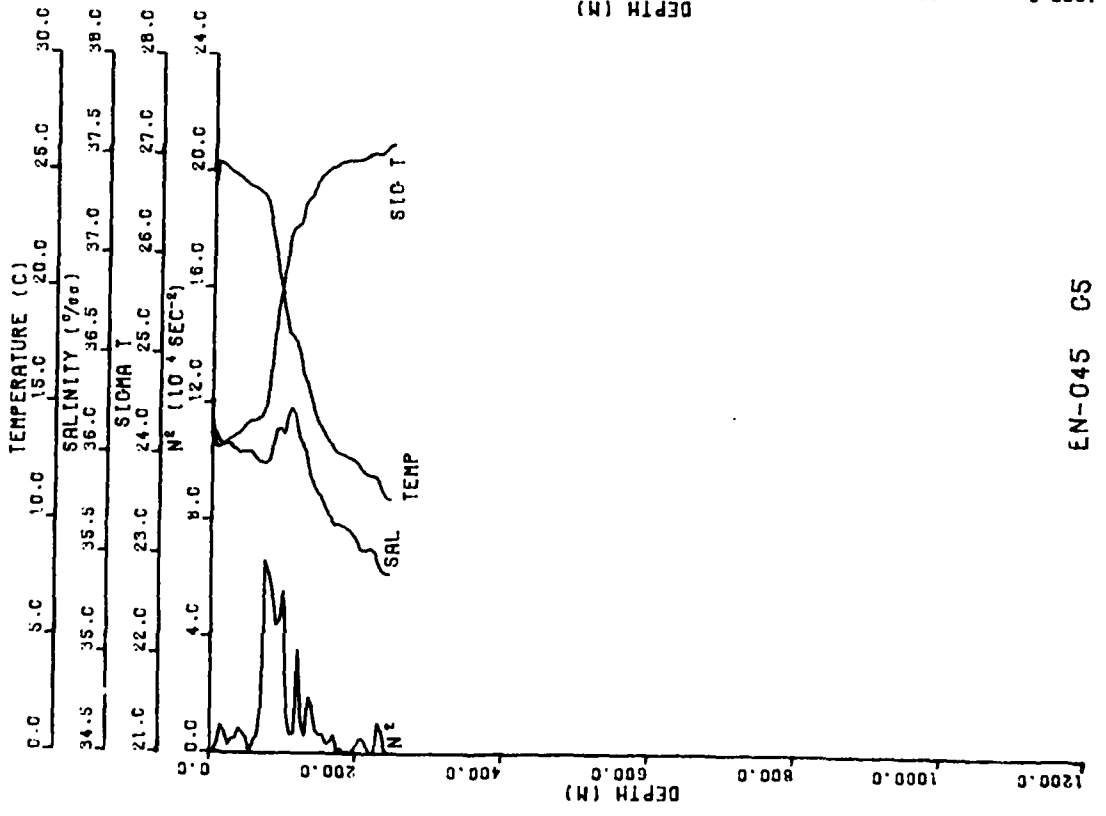
EN-045 G4



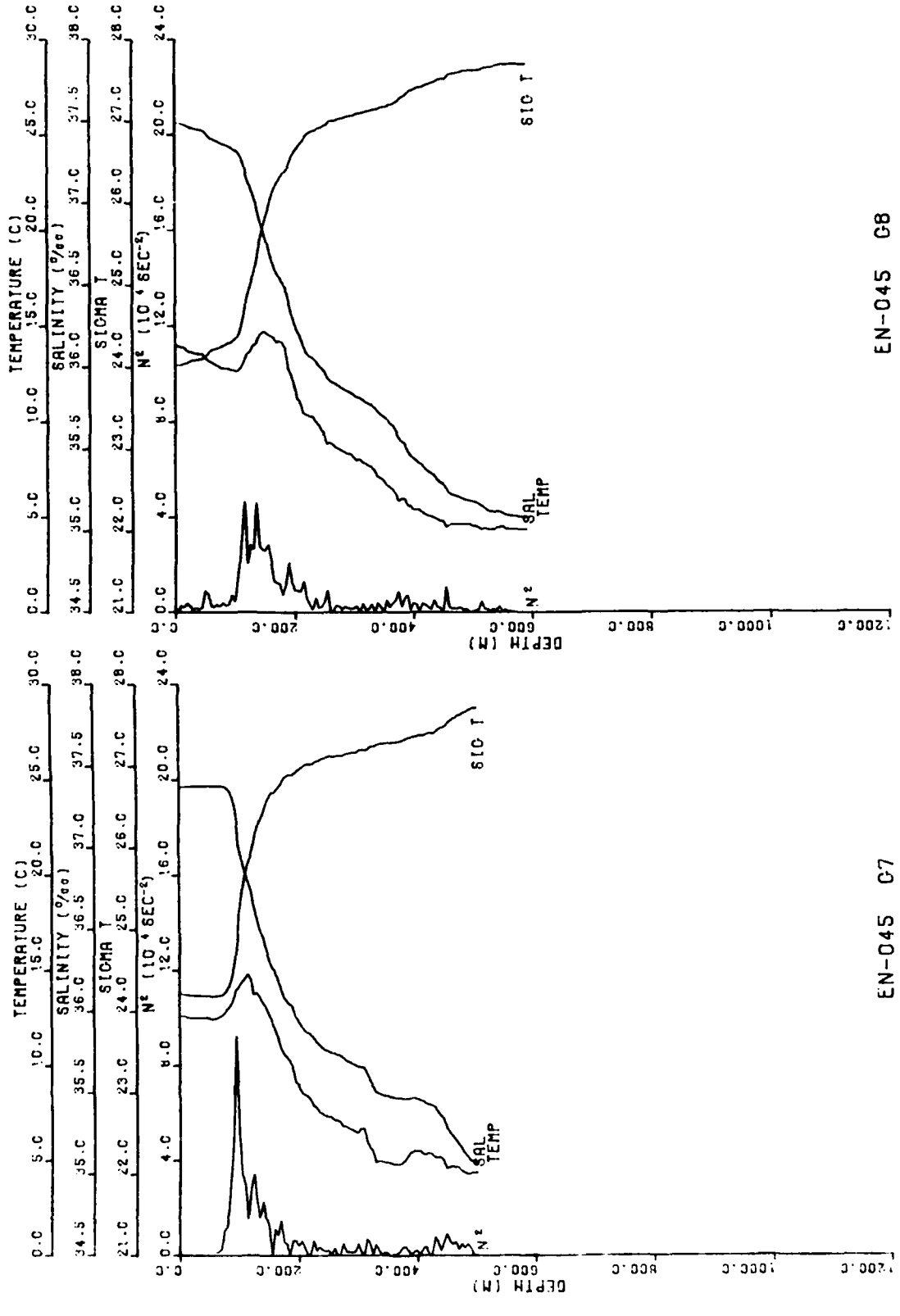
EN-045 A14

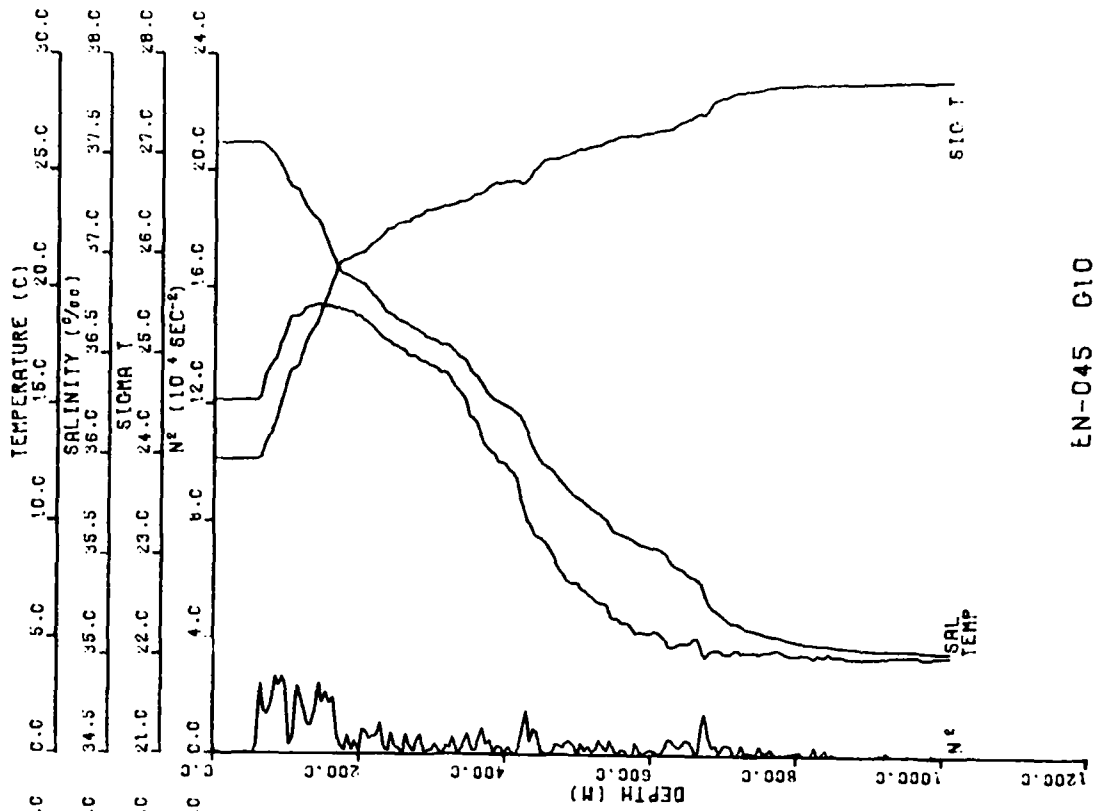


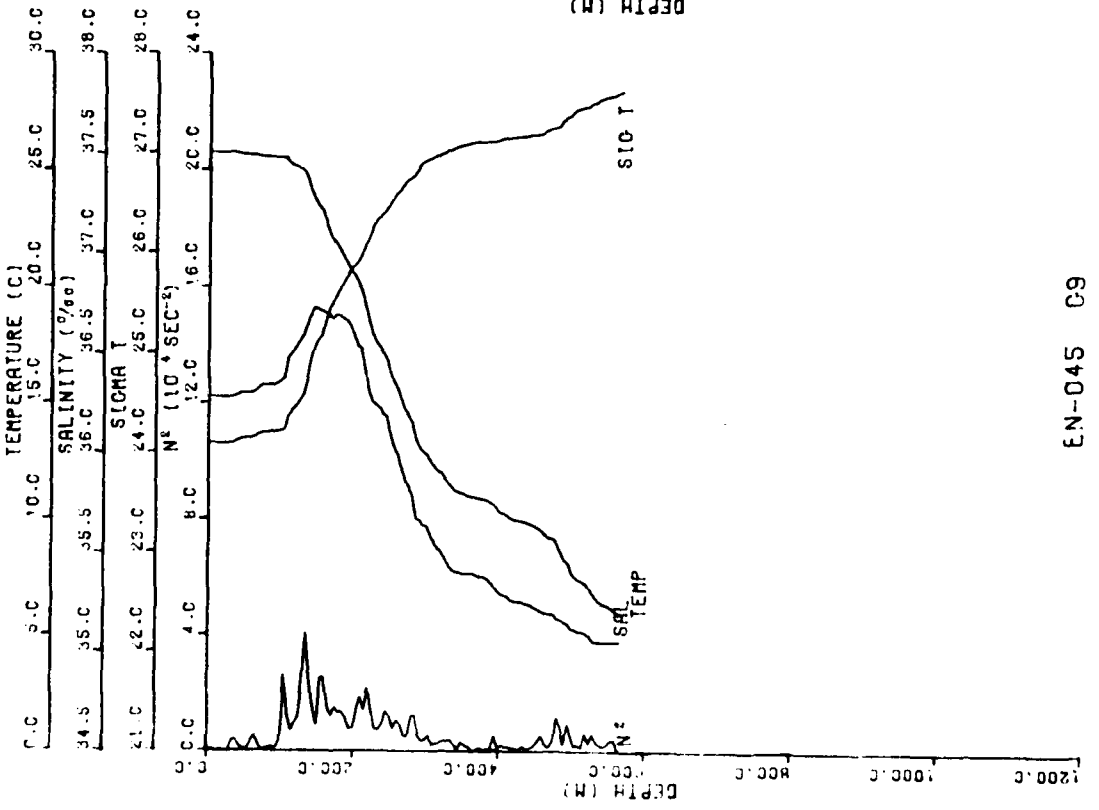
EN-045 C6

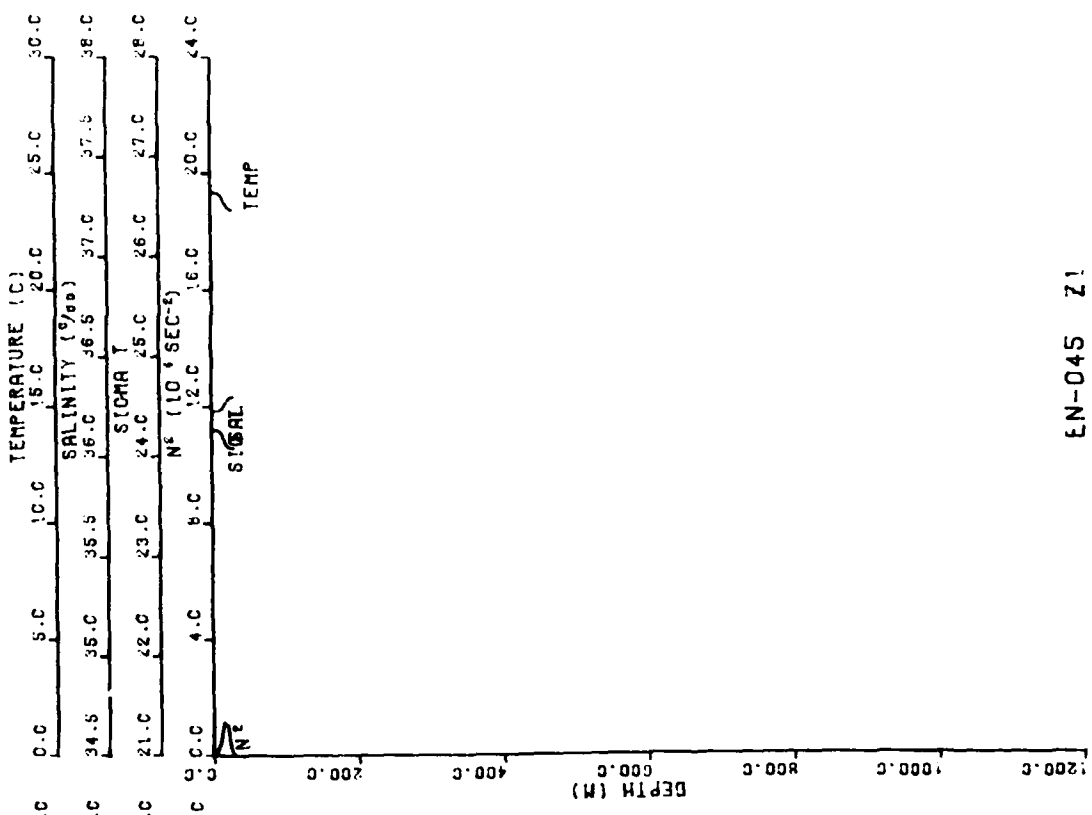


EN-045 C5

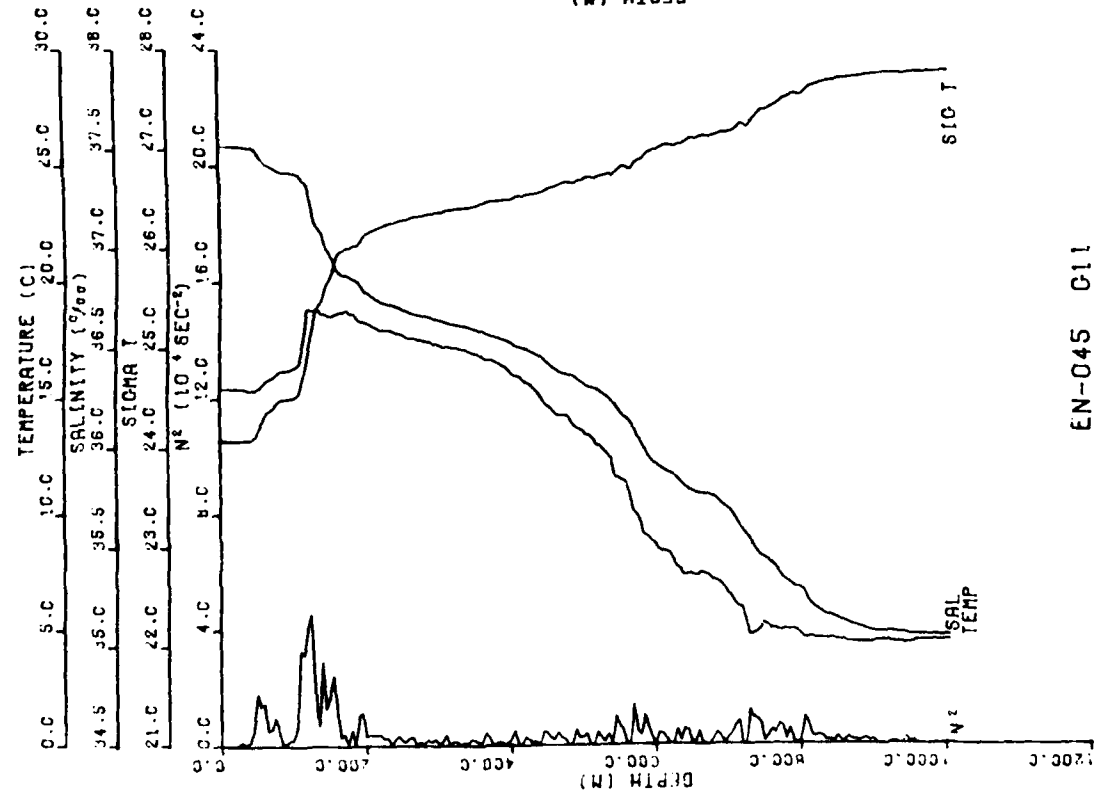

EN-045 C8
EN-045 C7
TEMPERATURE (C)
SALINITY (°/oo)
SIGMA T
N² (10⁴ SEC⁻²)
SIG T
SAL
TEMP
N²
DEPTH (M)


TEMPERATURE (C)
SALINITY (‰)
SIGMA T
N² (10⁻⁴ SEC⁻²)
DEPTH (M)
SIG T
SAL
TEMP
N²
EN-045 C10

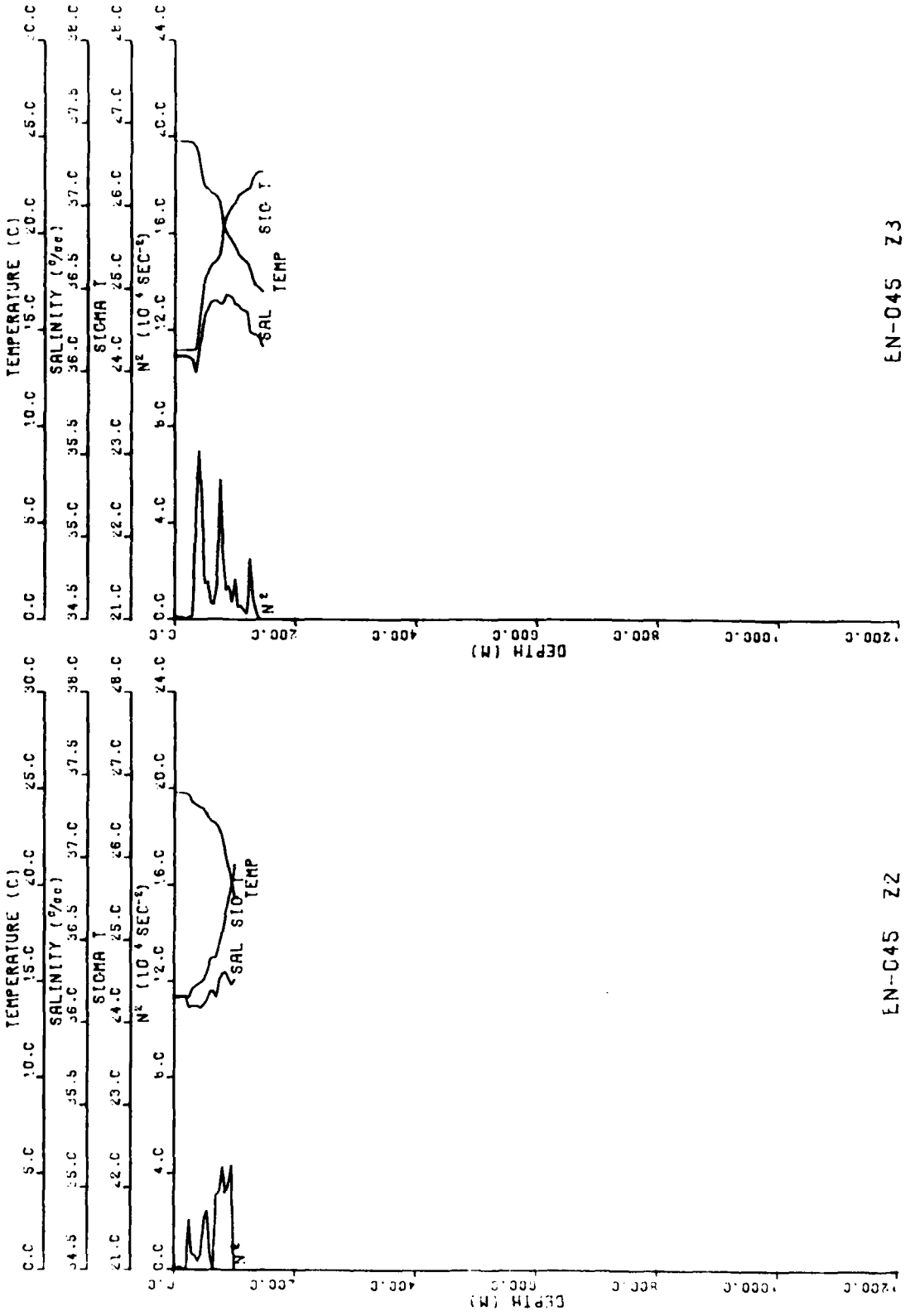

TEMPERATURE (C)
SALINITY (‰)
SIGMA T
N² (10⁻⁴ SEC⁻²)
DEPTH (M)
SIG T
SAL
TEMP
N²
EN-045 C9

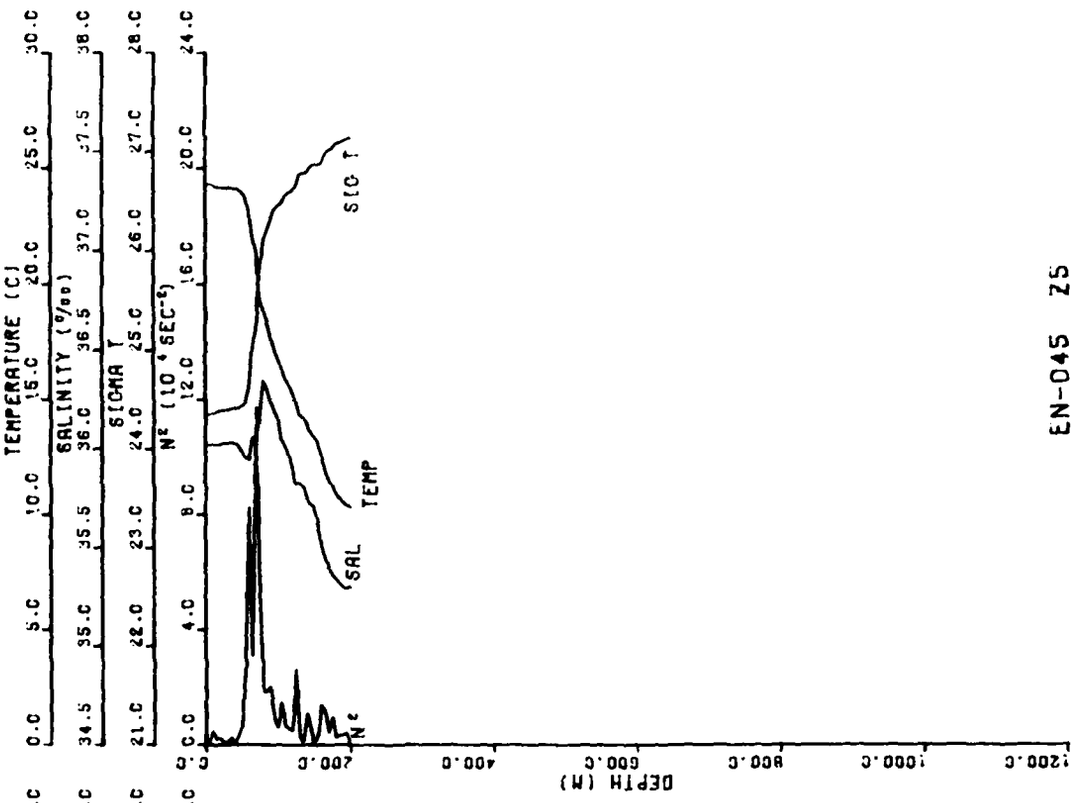


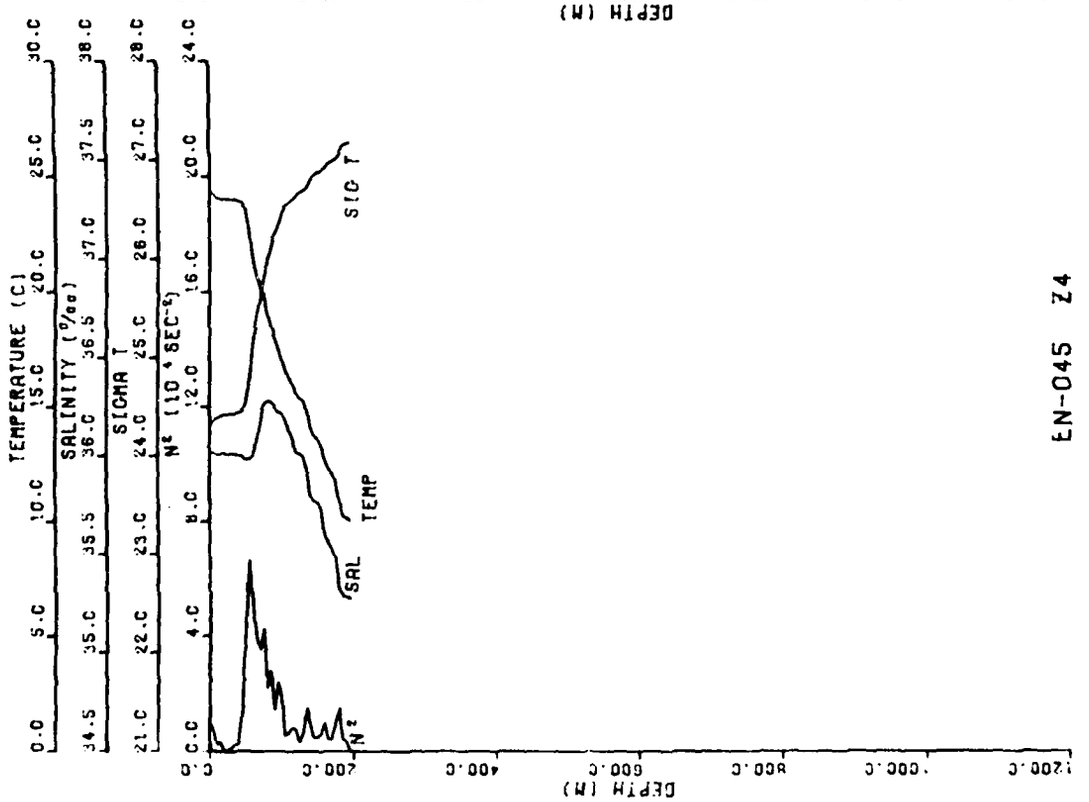
EN-045 Z1

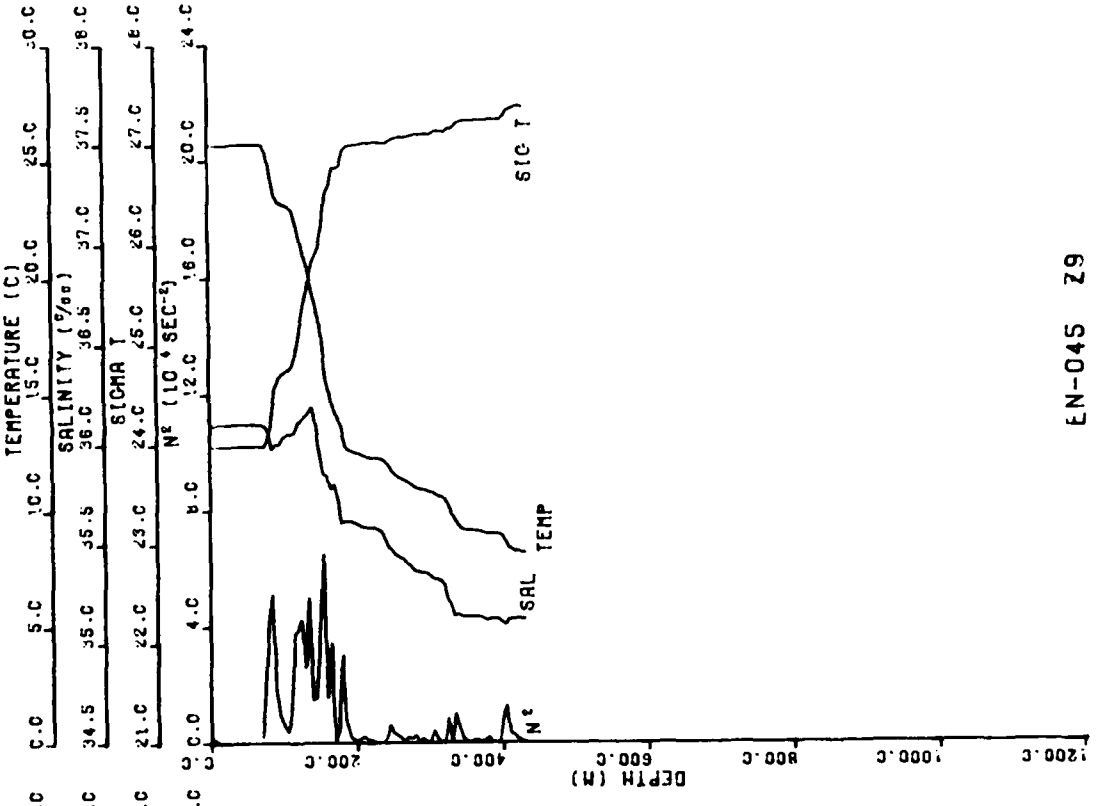


EN-045 C11

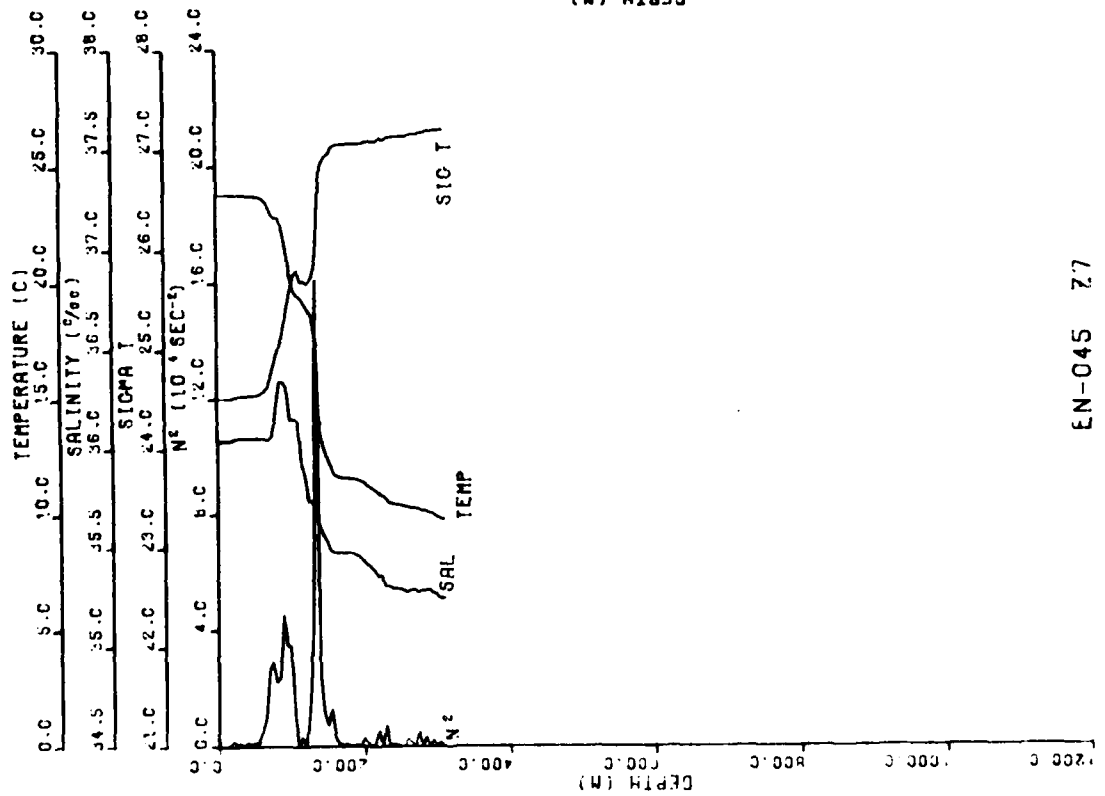

TEMPERATURE (C)
SALINITY (°/oo)
SIGMA T
N² (10⁻⁴ SEC⁻²)
SAL
TEMP
SIG T
N²
DEPTH (M)
EN-045 Z3
EN-045 Z2


TEMPERATURE (C)
SALINITY (‰)
SIGMA T
N² (10⁻⁴ SEC⁻²)
SIG T
SAL
TEMP
N²
DEPTH (M)
EN-045 Z5

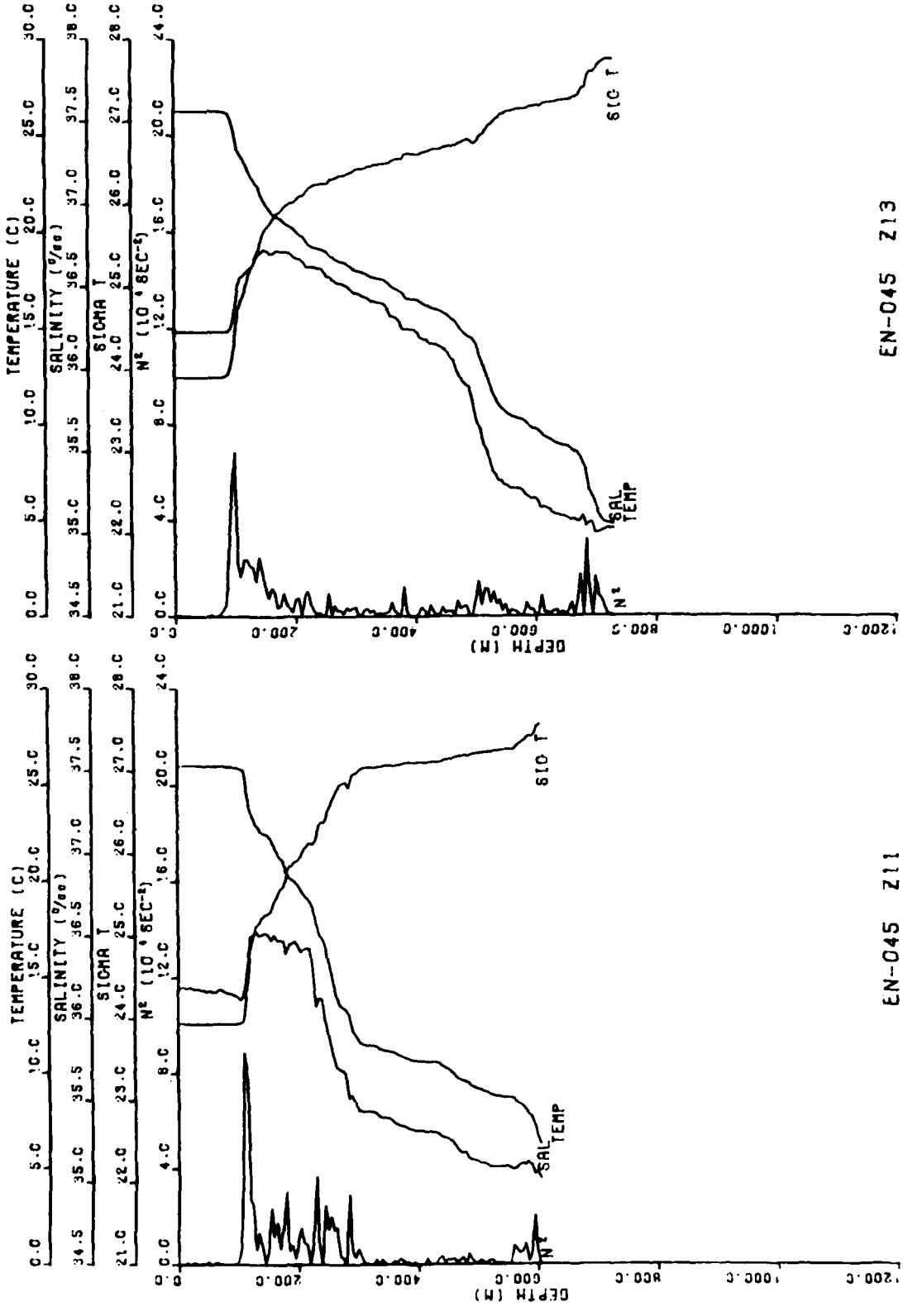

TEMPERATURE (C)
SALINITY (‰)
SIGMA T
N² (10⁻⁴ SEC⁻²)
SIG T
SAL
TEMP
N²
DEPTH (M)
EN-045 Z4

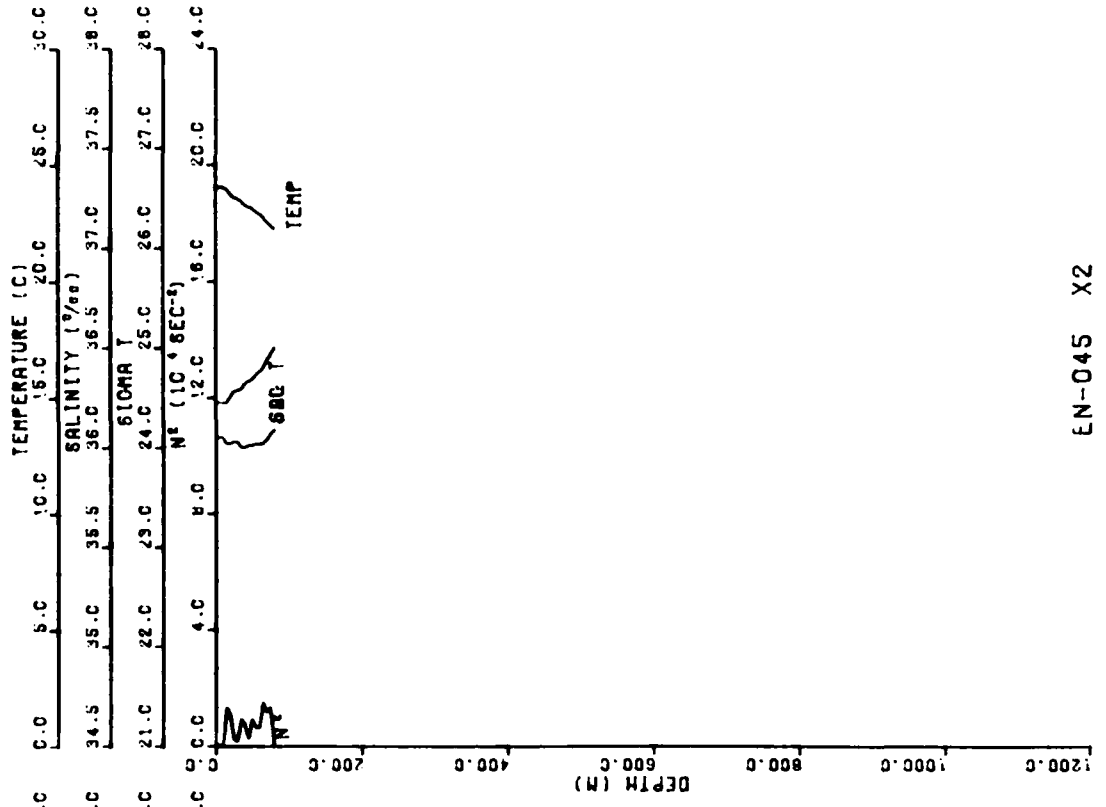


EN-045 29

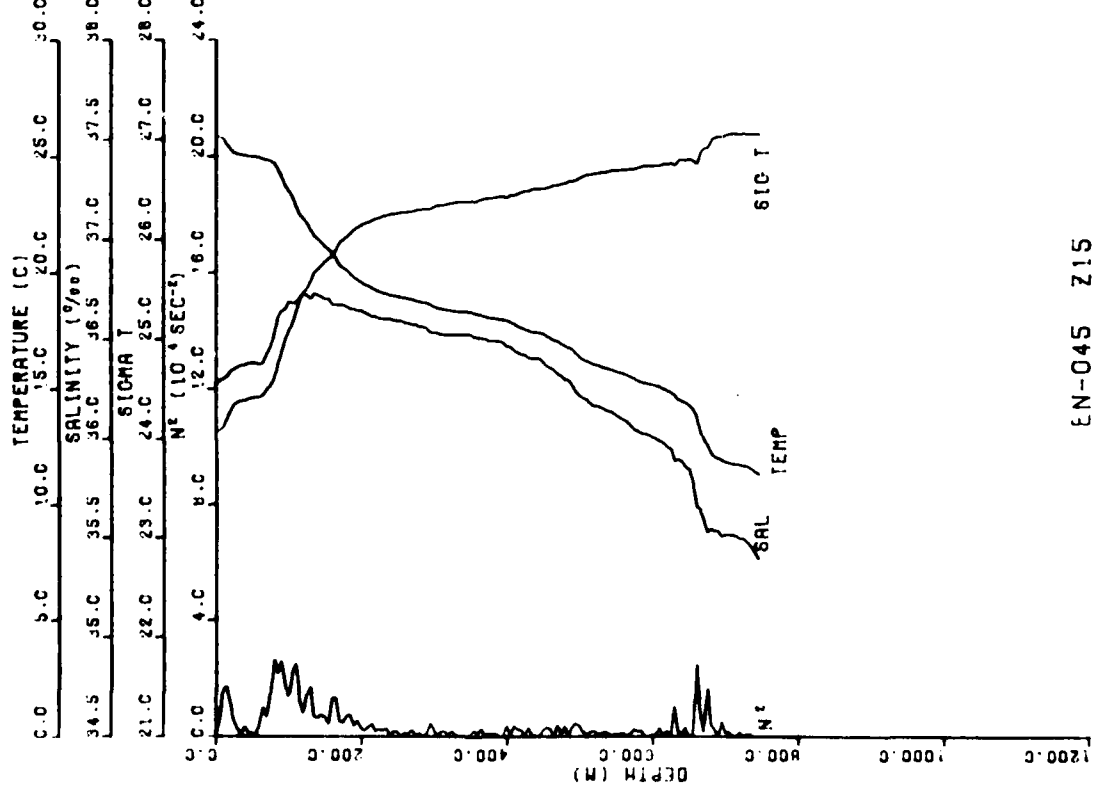


EN-045 27

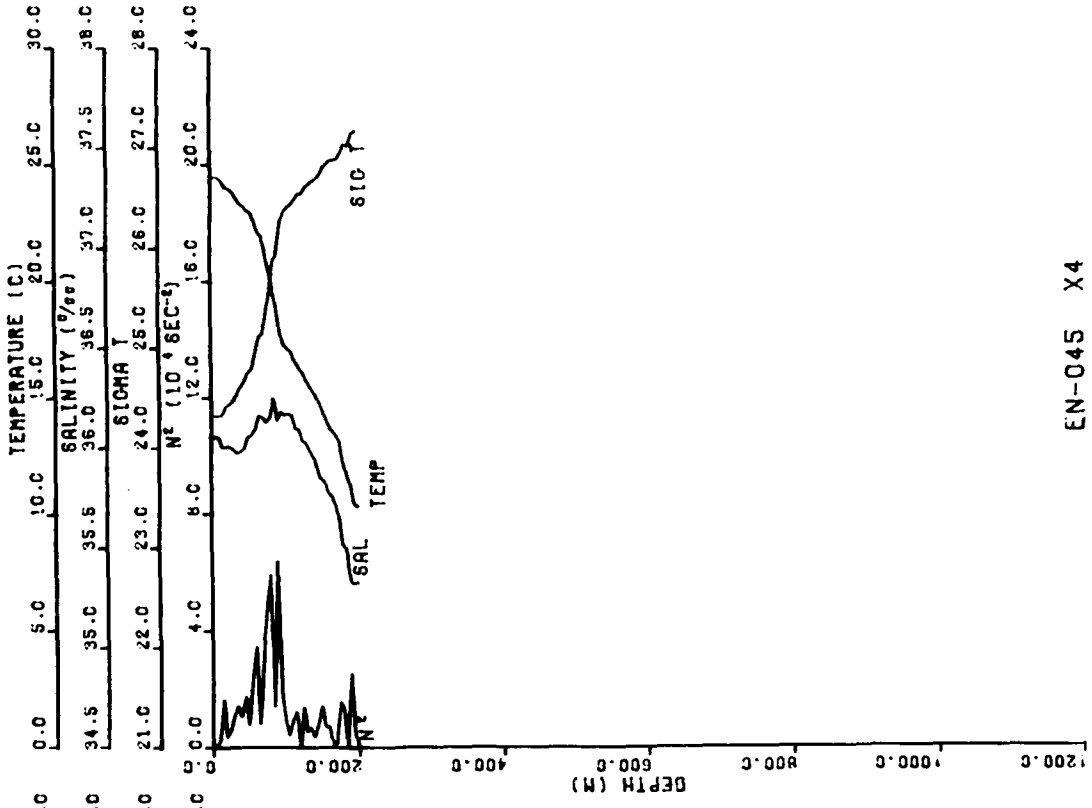

TEMPERATURE (C)
SALINITY (‰)
SIGMA T
N² (10⁻⁴ SEC⁻²)
DEPTH (M)
SIG T
SAL
TEMP
N²
EN-045 Z13
EN-045 Z11

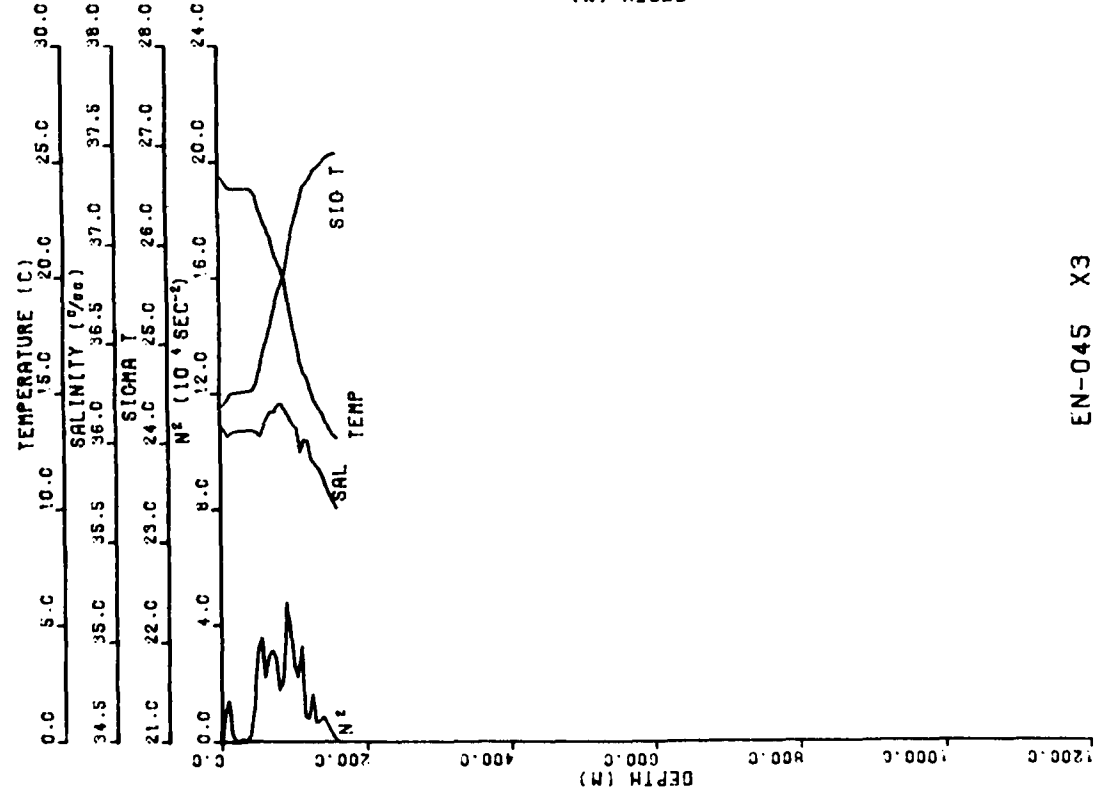


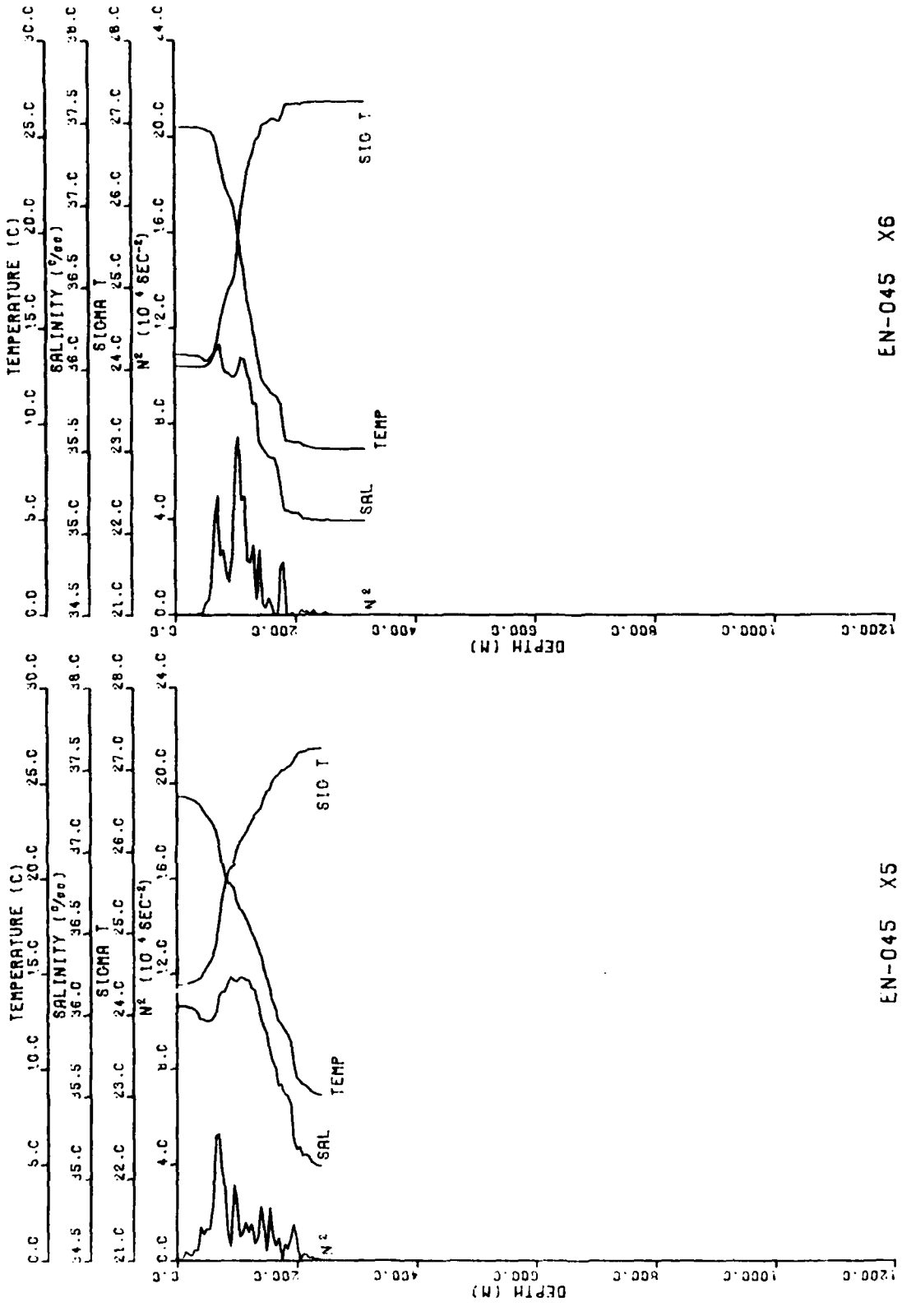
EN-045 X2

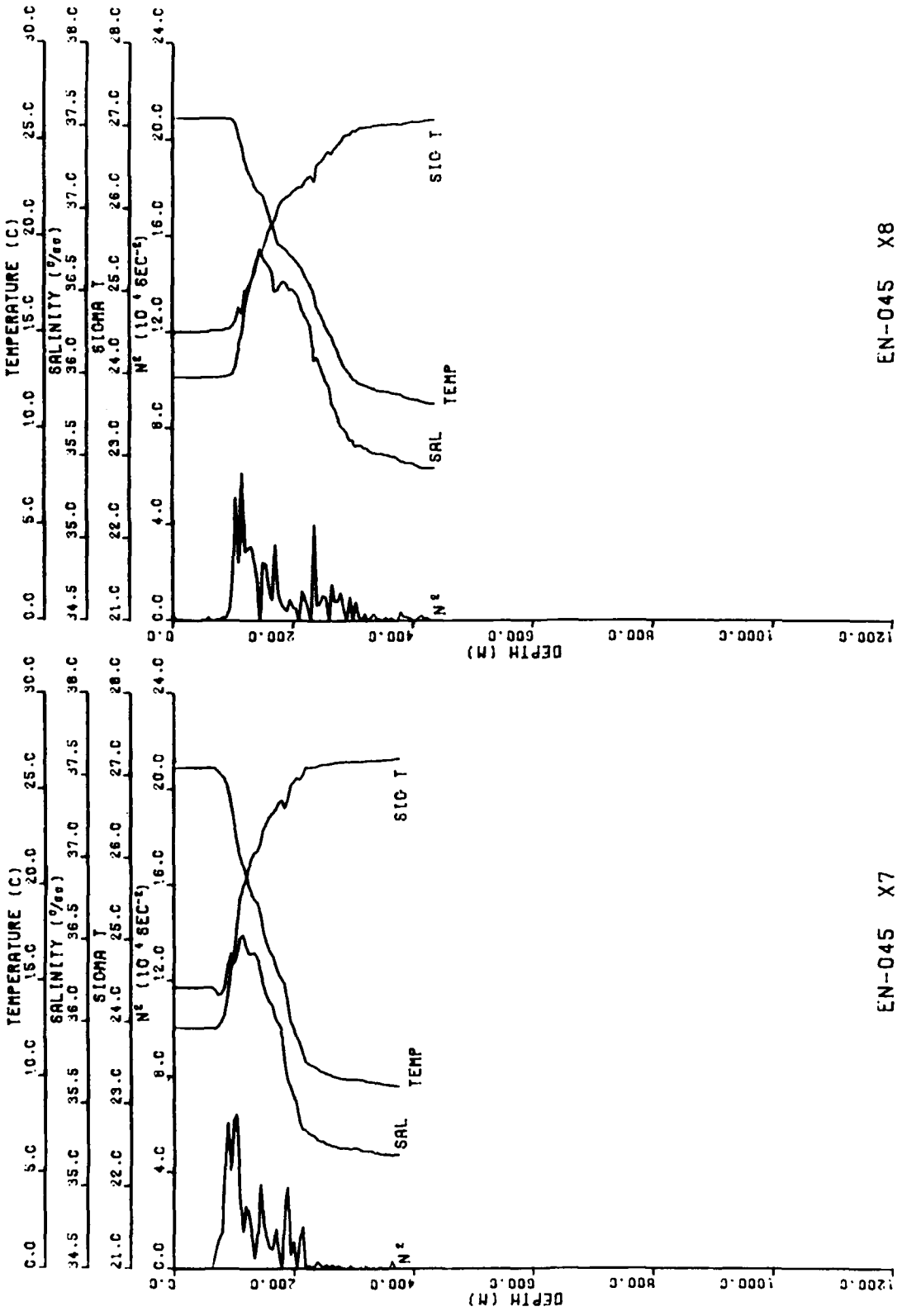


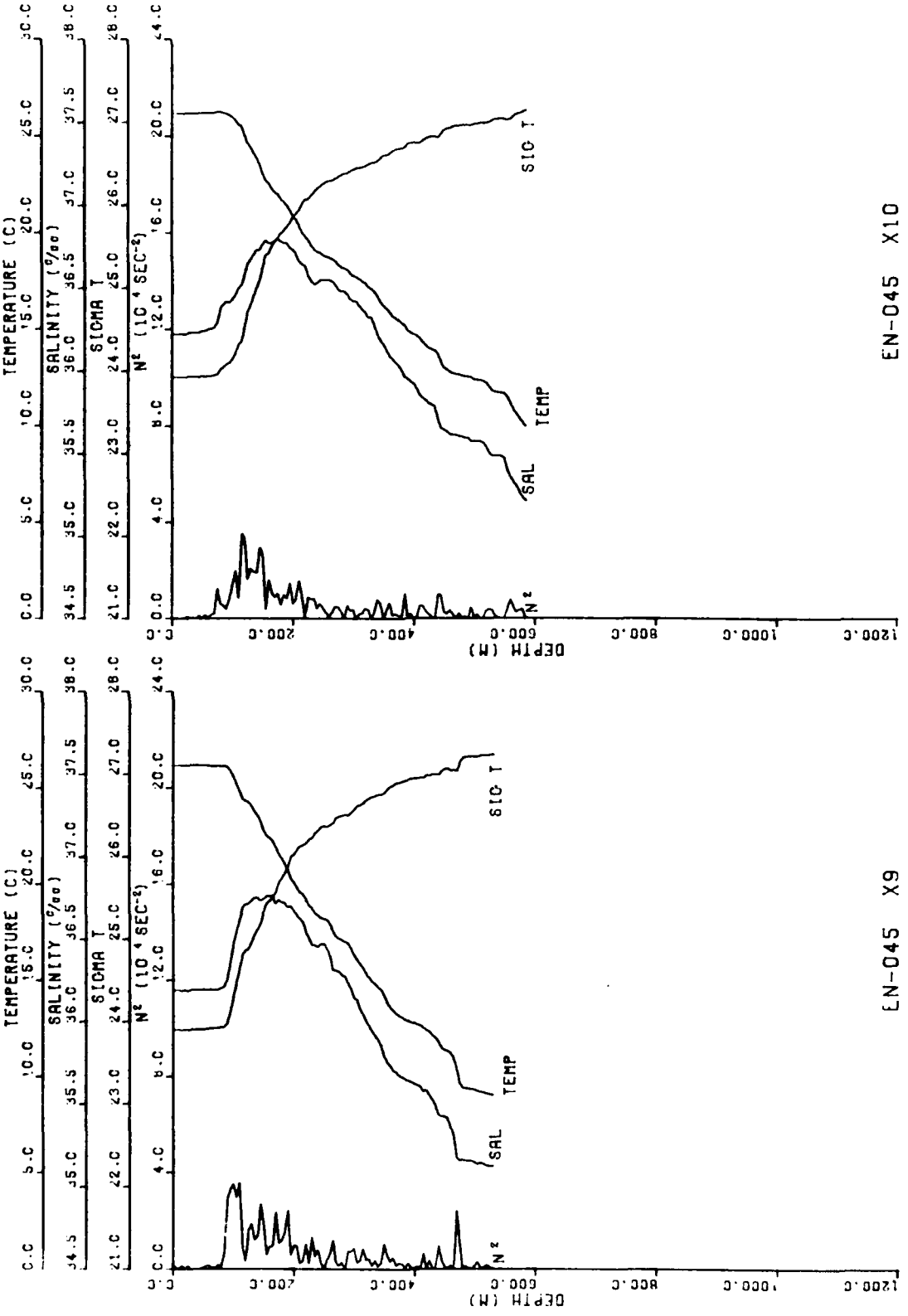
EN-045 Z15

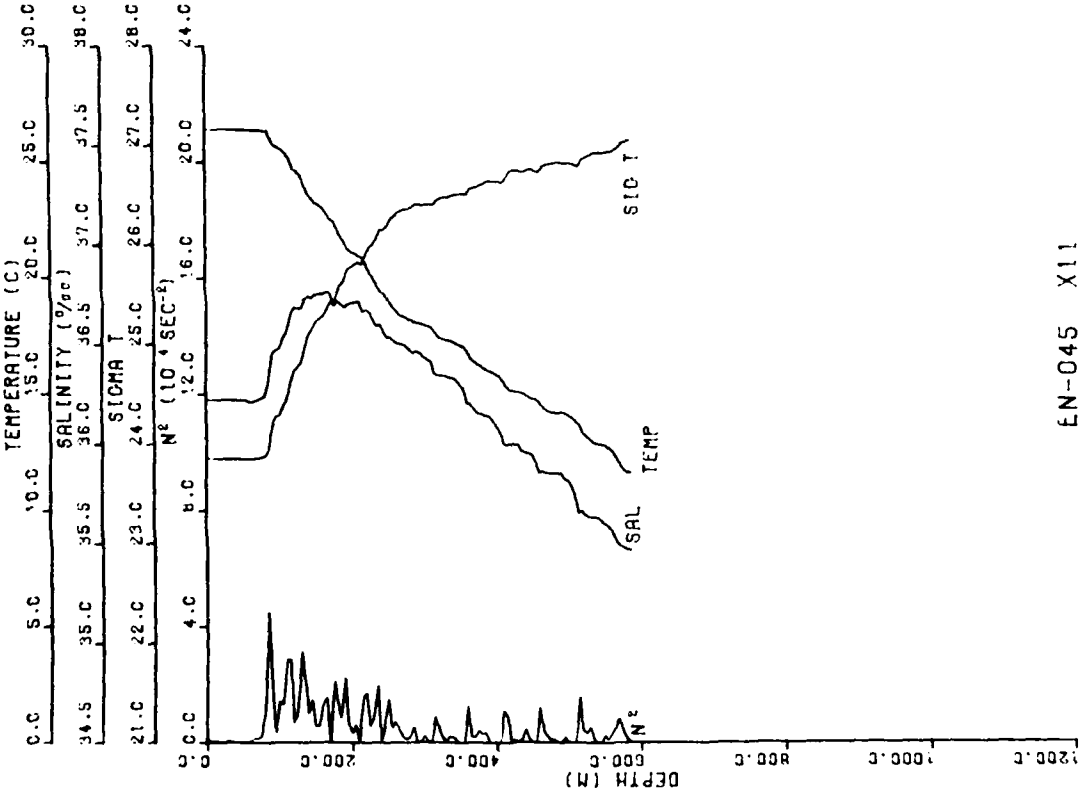

TEMPERATURE (C)
SALINITY (°/oo)
SIGMA T
N² (10⁻⁴ SEC⁻²)
SIO T
SAL
TEMP
N²
DEPTH (M)
EN-045 X4


TEMPERATURE (C)
SALINITY (°/oo)
SIGMA T
N² (10⁻⁴ SEC⁻²)
SIO T
SAL
TEMP
N²
DEPTH (M)
EN-045 X3


EN-045 X6
EN-045 X5
TEMPERATURE (C)
SALINITY (‰)
SIGMA T
N² (10⁻⁴ SEC⁻²)
SIG T
TEMP
SAL
N²
DEPTH (M)


TEMPERATURE (C)
SALINITY (°/₀₀)
SIGMA T
N² (10⁻⁴ SEC⁻²)
SIG T
SAL
TEMP
N²
DEPTH (M)
EN-045 X8
EN-045 X7


EN-045 X10
EN-045 X9
TEMPERATURE (C)
SALINITY (°/oo)
SIGMA T
N² (10⁻⁴ SEC⁻²)
DEPTH (M)
SIG T
SAL
TEMP
N²


TEMPERATURE (C)
SALINITY (‰)
SIGMA T
N² (10⁻⁴ SEC⁻²)
DEPTH (M)
SIG T
SAL
TEMP
N²

EN-045 X11

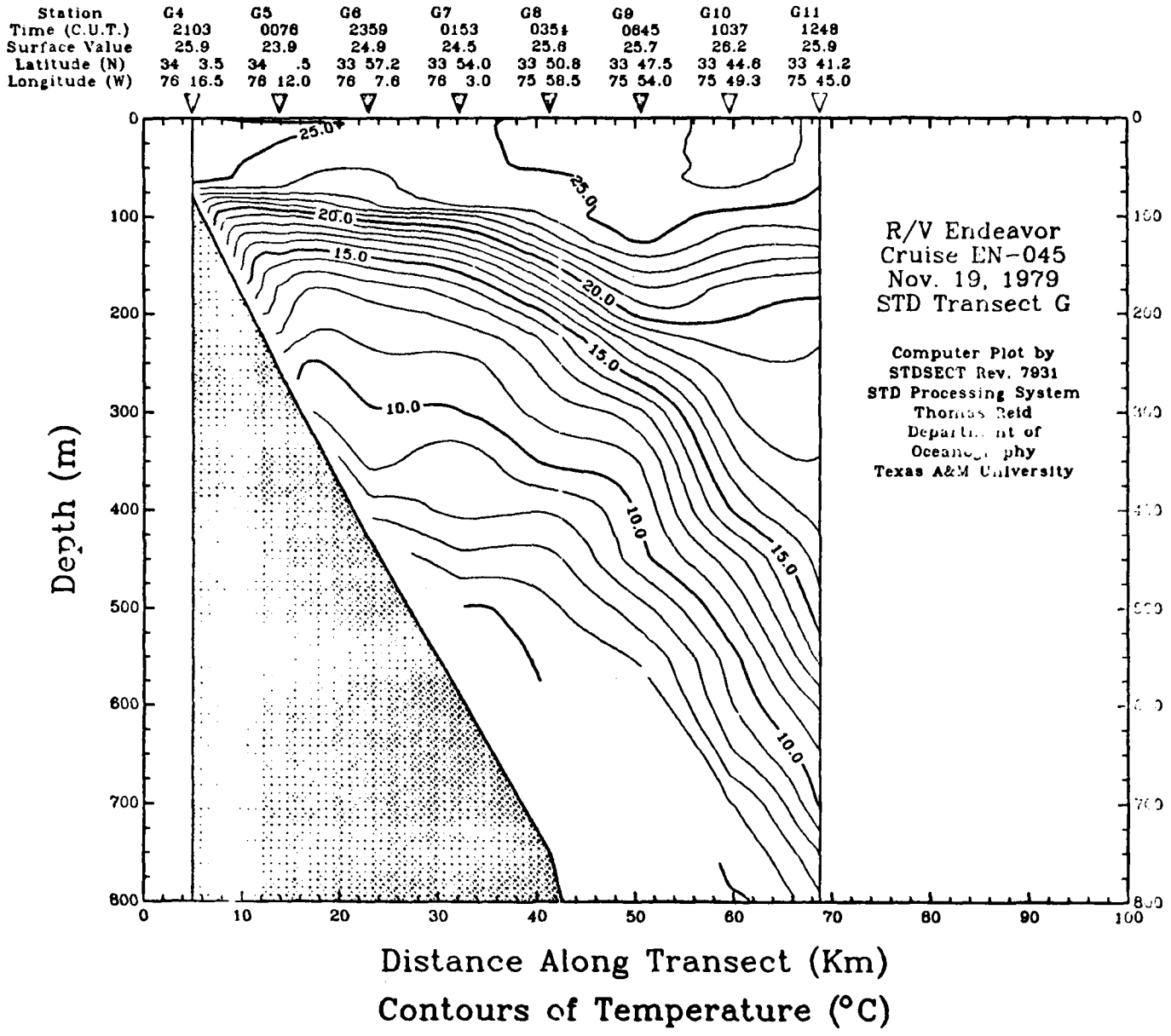
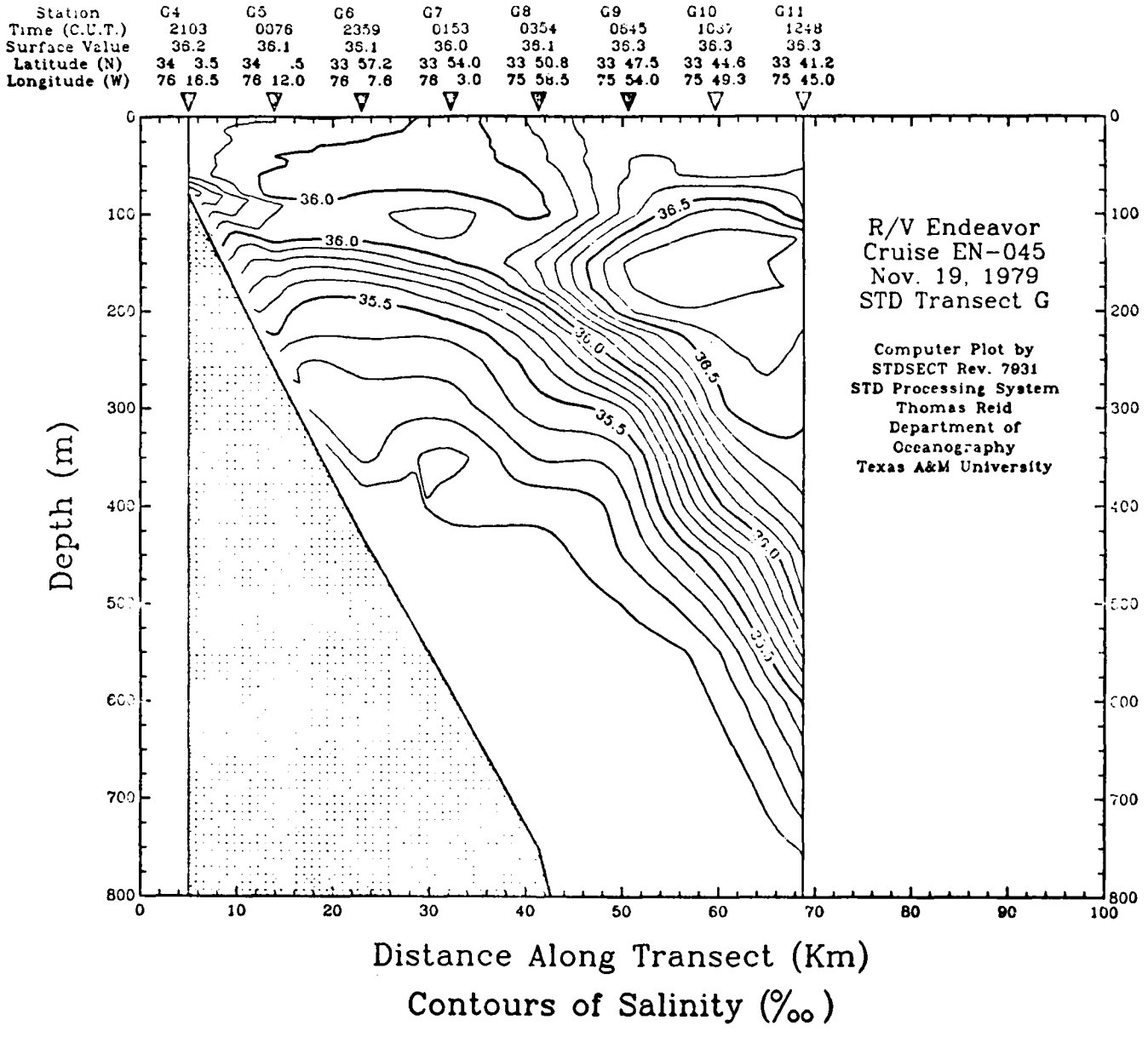
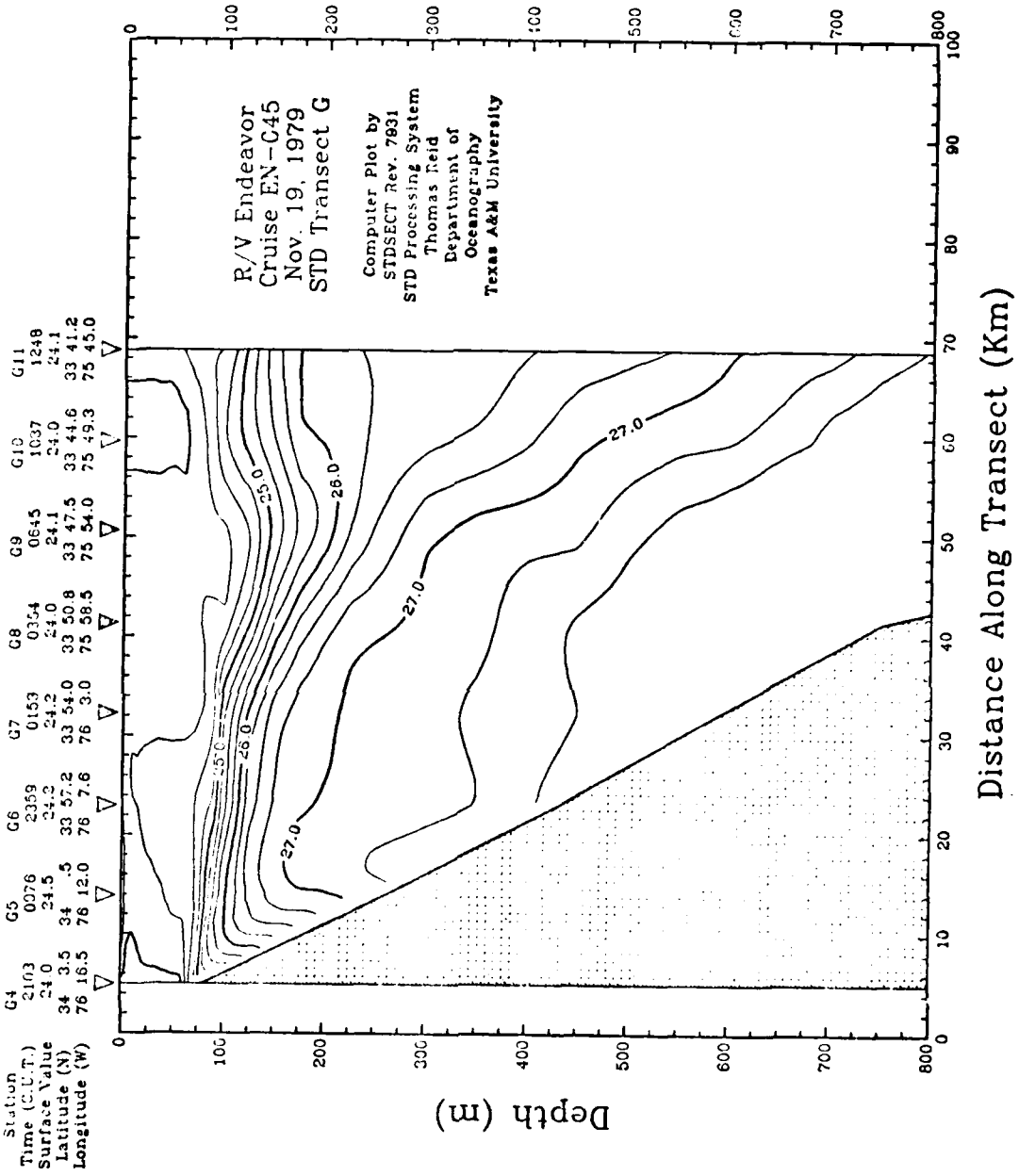
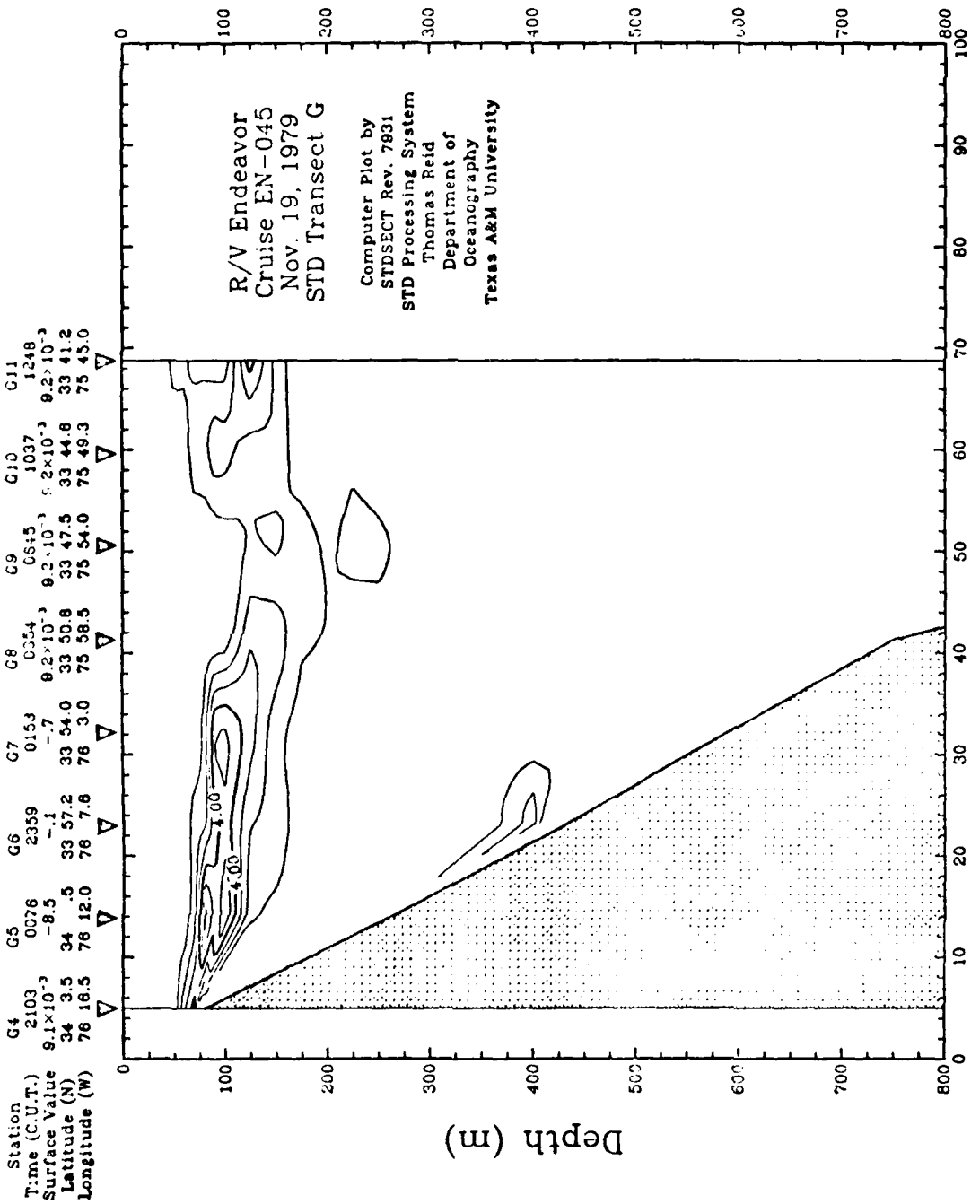


Figure 25. STD section contours of temperature, salinity and derived sigma-t, and N^2 fields for Transect G. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units and $0.5 \cdot 10^{-4}$ $rad^2 \cdot s^{-2}$, respectively. This figure is continued on the next 3 pages.


Station G4 G5 G6 G7 G8 G9 G10 G11
Time (C.U.T.) 2103 0076 2359 0153 0354 0645 1037 1248
Surface Value 36.2 36.1 36.1 36.0 36.1 36.3 36.3 36.3
Latitude (N) 34 3.5 34 .5 33 57.2 33 54.0 33 50.8 33 47.5 33 44.6 33 41.2
Longitude (W) 76 16.5 76 12.0 76 7.8 76 3.0 75 58.5 75 54.0 75 49.3 75 45.0
Depth (m)
Distance Along Transect (Km)
Contours of Salinity (‰)
R/V Endeavor
Cruise EN-045
Nov. 19, 1979
STD Transect G
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University


R/V Endeavor
Cruise EN-045
Nov. 19, 1979
STD Transect G
Computer Plot by
STDSECT Rev. 7831
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Station
Time (G.M.T.)
Surface Value
Latitude (N)
Longitude (W)
G4 2103 24.0 34 3.5 76 16.5
G5 0076 24.5 34 .5 76 12.0
G6 2359 24.2 33 57.2 76 7.6
G7 0153 24.2 33 54.0 76 3.0
G8 0354 24.0 33 50.8 75 58.5
G9 0645 24.1 33 47.5 75 54.0
G10 1037 24.0 33 44.6 75 49.3
G11 1248 24.1 33 41.2 75 45.0
25.0
26.0
27.0
Depth (m)
Distance Along Transect (Km)
Contours of σ_t (g/l)


R/V Endeavor
Cruise EN-045
Nov. 19, 1979
STD Transect G
Computer Plot by
STDSECT Rev. 7831
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Station
Time (G.U.T.)
Surface Value
Latitude (N)
Longitude (W)
G4 2103 9.1x10⁻³ 34 3.5 76 16.5
G5 0076 -8.5 34 .5 76 12.0
G6 2359 -.1 33 57.2 76 7.6
G7 0153 -.7 33 54.0 76 3.0
G8 0354 8.2x10⁻³ 33 50.8 75 58.5
G9 0845 8.2x10⁻³ 33 47.5 75 54.0
G10 1037 8.2x10⁻³ 33 44.8 75 49.3
G11 1248 8.2x10⁻³ 33 41.2 75 45.0
4.00
4.00
Depth (m)
Distance Along Transect (Km)
Contours of N² (10⁴ rad² /s²)

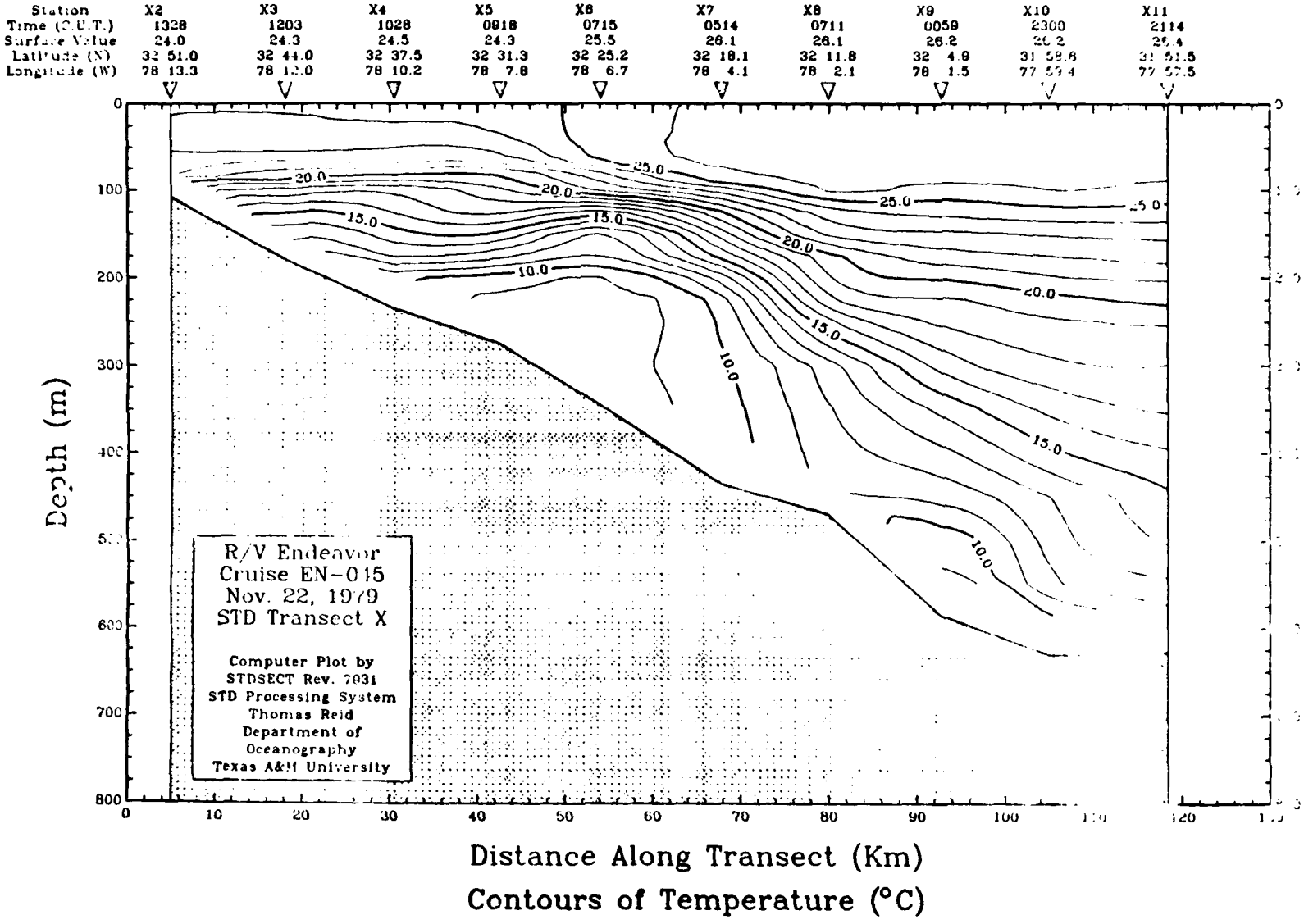
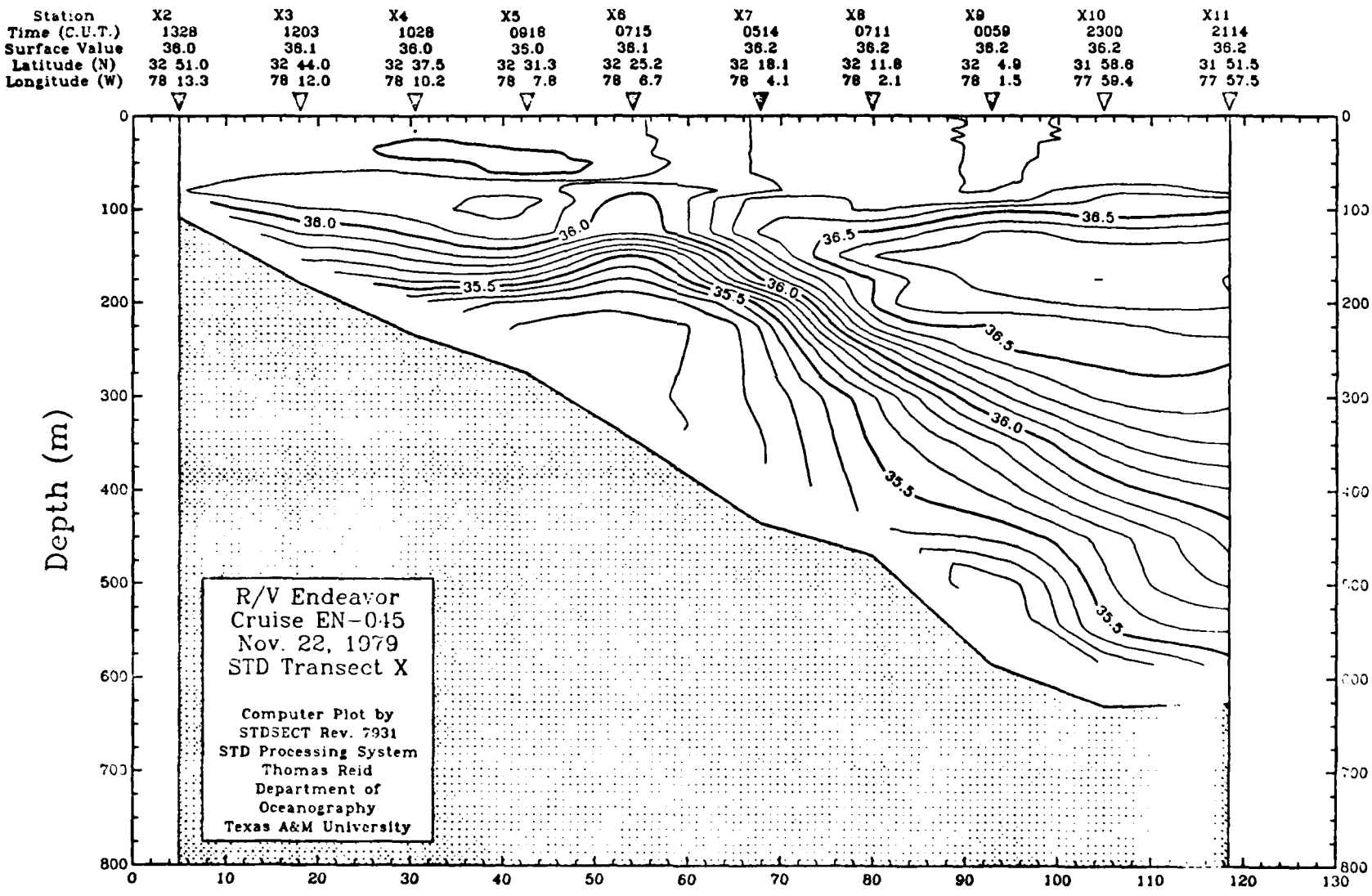
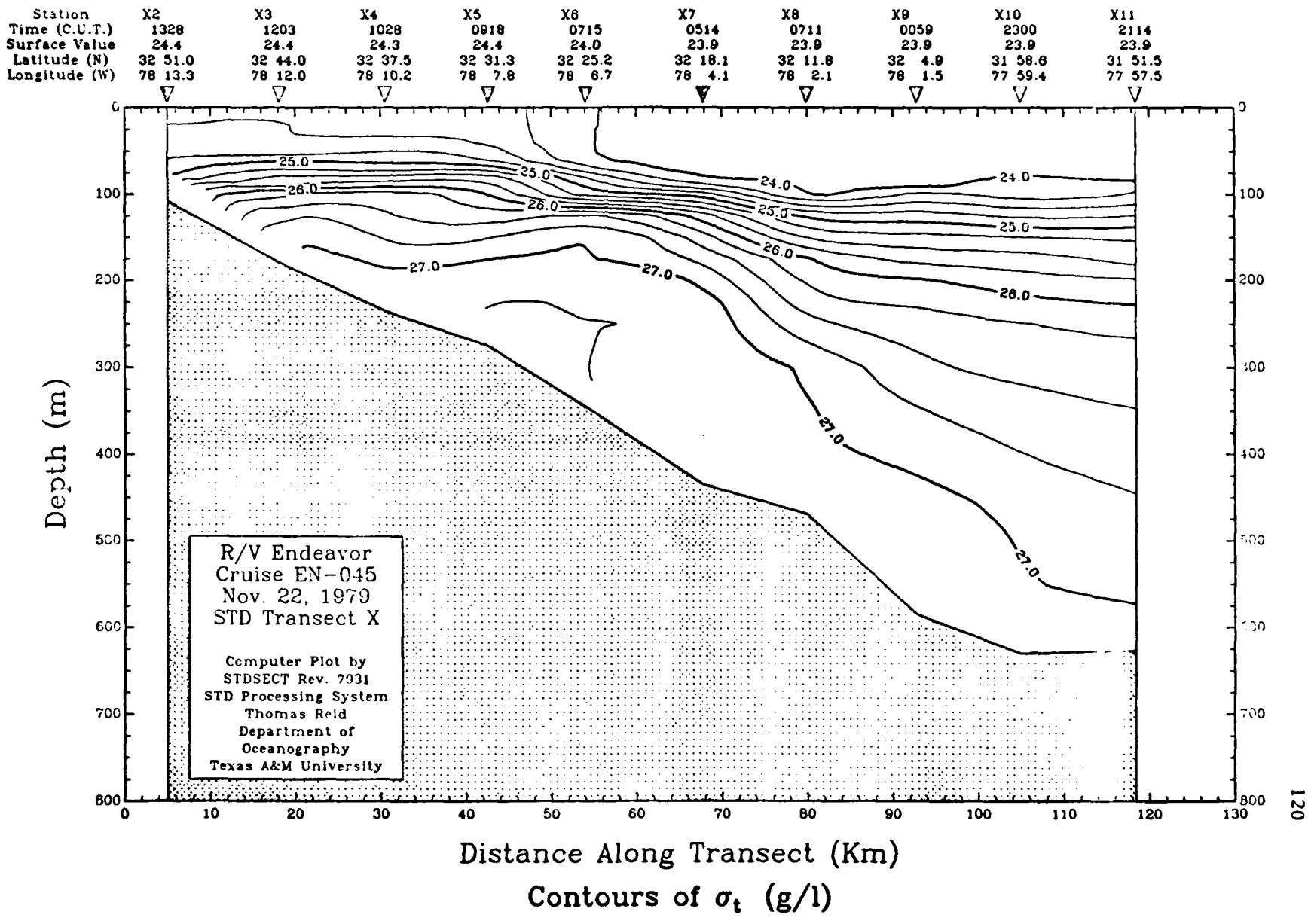
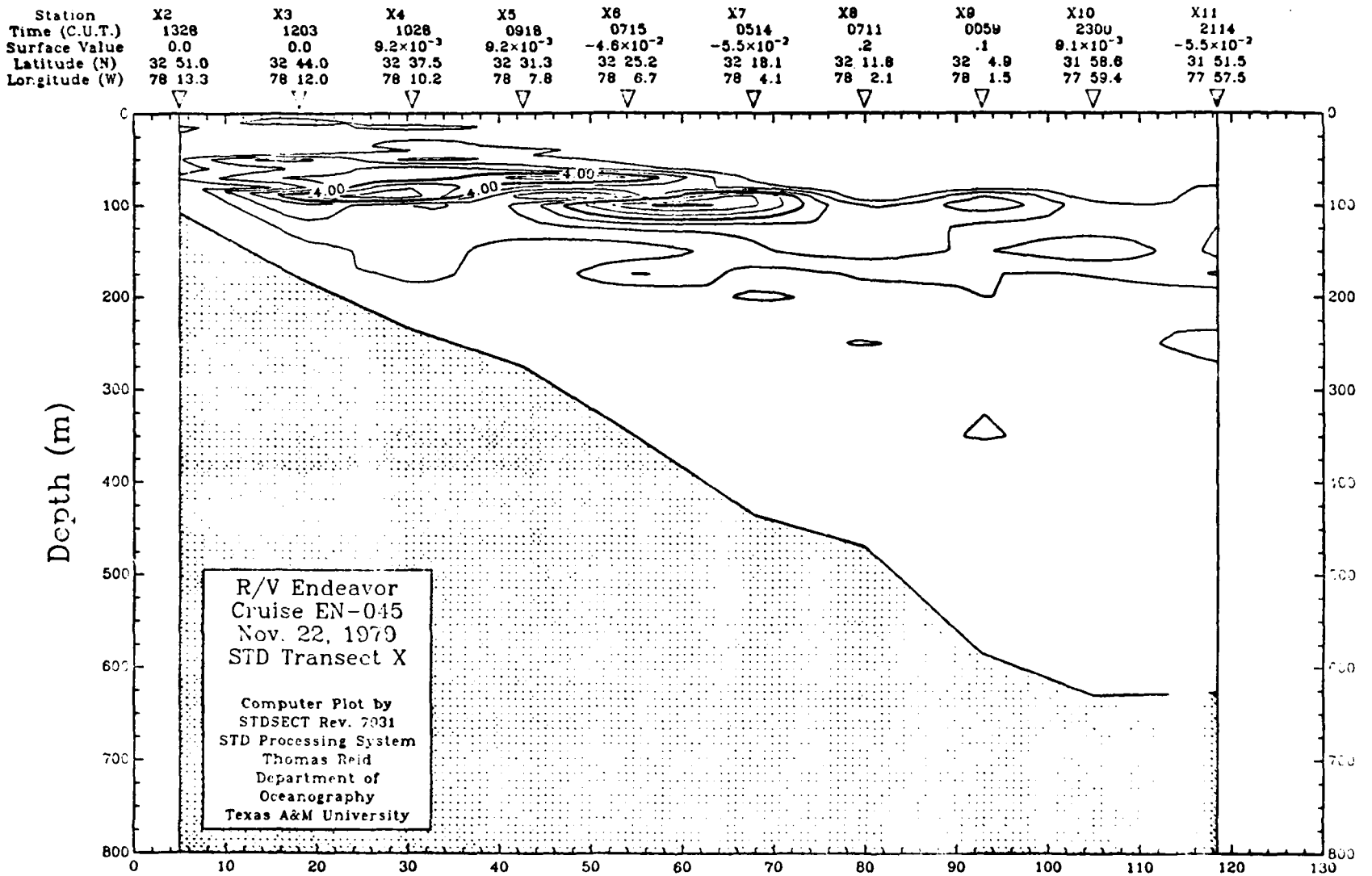


Figure 26 STD section contours of temperature, salinity and derived sigma-t, and N^2 fields for Transect X. Contour intervals are 1 0.1‰, 0.25 σ_t units and 0.5×10^{-4} $rad^2 \cdot s^{-2}$, respectively. This figure is continued on the next 3 pages.


Station X2 X3 X4 X5 X6 X7 X8 X9 X10 X11
Time (G.M.T.) 1328 1203 1028 0918 0715 0514 0711 0059 2300 2114
Surface Value 36.0 36.1 36.0 36.0 36.1 36.2 36.2 36.2 36.2 36.2
Latitude (N) 32 51.0 32 44.0 32 37.5 32 31.3 32 25.2 32 18.1 32 11.8 32 4.9 31 58.6 31 51.5
Longitude (W) 78 13.3 78 12.0 78 10.2 78 7.8 78 6.7 78 4.1 78 2.1 78 1.5 77 59.4 77 57.5
Depth (m)
0
100
200
300
400
500
600
700
800
36.0
35.5
36.5
R/V Endeavor
Cruise EN-045
Nov. 22, 1979
STD Transect X
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0
10
20
30
40
50
60
70
80
90
100
110
120
130
Distance Along Transect (Km)
Contours of Salinity (‰)


Station X2 X3 X4 X5 X6 X7 X8 X9 X10 X11
Time (C.U.T.) 1328 1203 1028 0918 0715 0514 0711 0059 2300 2114
Surface Value 24.4 24.4 24.3 24.4 24.0 23.9 23.9 23.9 23.9 23.9
Latitude (N) 32 51.0 32 44.0 32 37.5 32 31.3 32 25.2 32 18.1 32 11.8 32 4.8 31 58.6 31 51.5
Longitude (W) 78 13.3 78 12.0 78 10.2 78 7.8 78 6.7 78 4.1 78 2.1 78 1.5 77 59.4 77 57.5
Depth (m)
0
100
200
300
400
500
600
700
800
24.0
25.0
26.0
27.0
R/V Endeavor
Cruise EN-045
Nov. 22, 1979
STD Transect X
Computer Plot by
STDSECT Rev. 7031
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0 10 20 30 40 50 60 70 80 90 100 110 120 130
Distance Along Transect (Km)
Contours of σ_t (g/l)


Station X2 X3 X4 X5 X6 X7 X8 X9 X10 X11
Time (C.U.T.) 1328 1203 1028 0918 0715 0514 0711 0059 2300 2114
Surface Value 0.0 0.0 9.2×10⁻³ 9.2×10⁻³ -4.6×10⁻² -5.5×10⁻² .2 .1 9.1×10⁻³ -5.5×10⁻²
Latitude (N) 32 51.0 32 44.0 32 37.5 32 31.3 32 25.2 32 18.1 32 11.8 32 4.9 31 58.6 31 51.5
Longitude (W) 78 13.3 78 12.0 78 10.2 78 7.8 78 6.7 78 4.1 78 2.1 78 1.5 77 59.4 77 57.5
4.00
4.00
4.00
Depth (m)
0
100
200
300
400
500
600
700
800
0 10 20 30 40 50 60 70 80 90 100 110 120 130
R/V Endeavor
Cruise EN-045
Nov. 22, 1979
STD Transect X
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Distance Along Transect (Km)
Contours of N² (10⁴ rad²/s²)

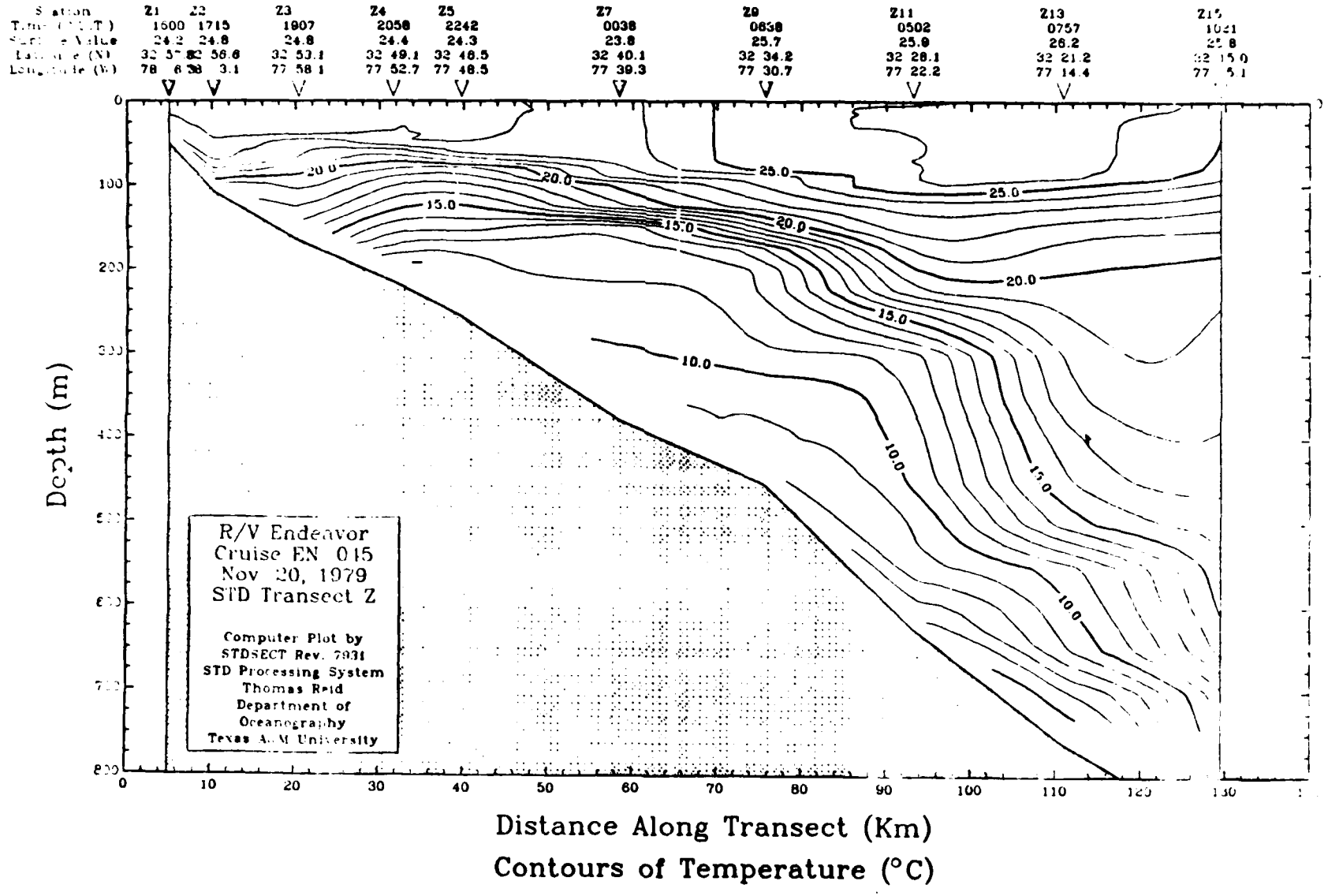
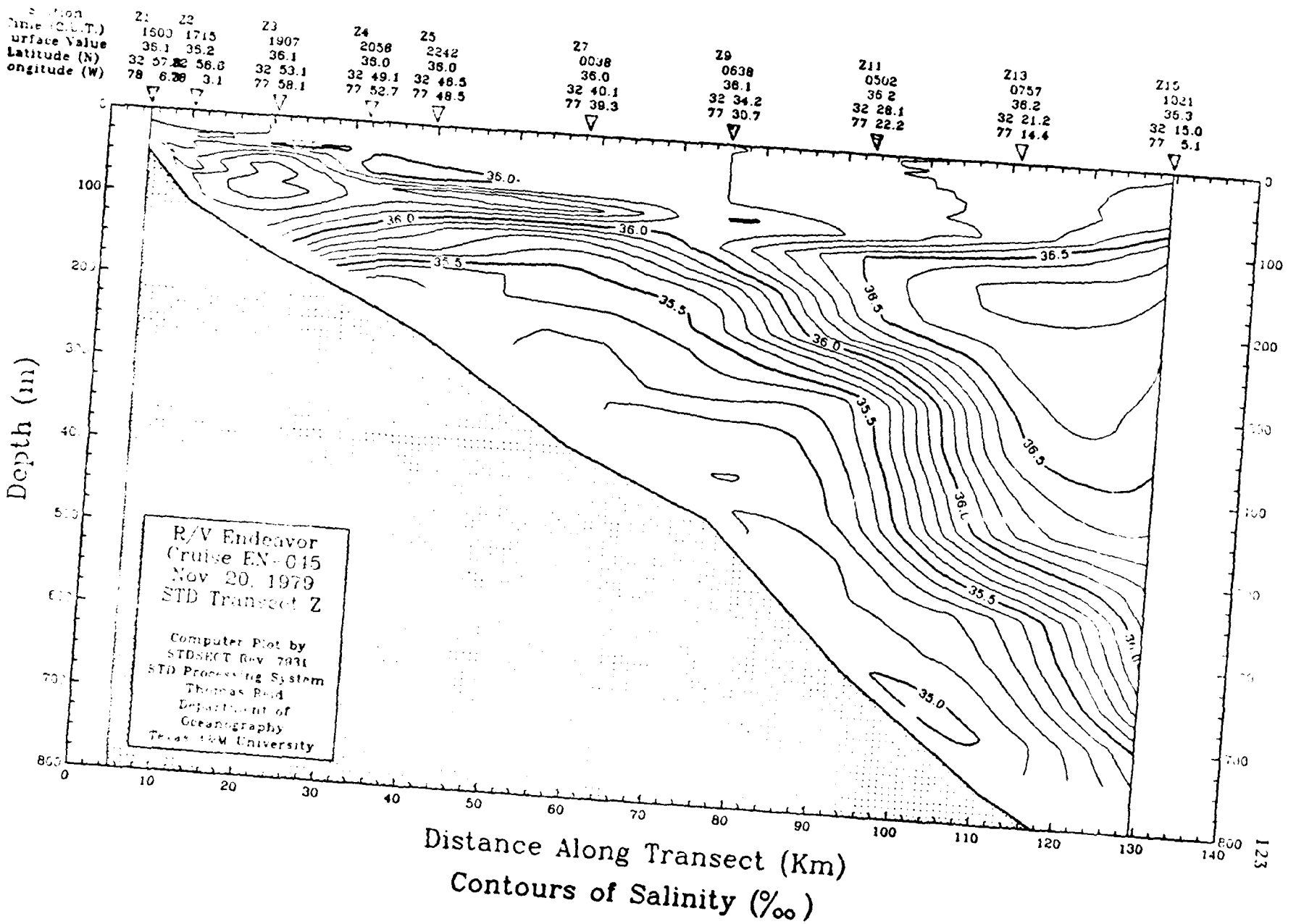
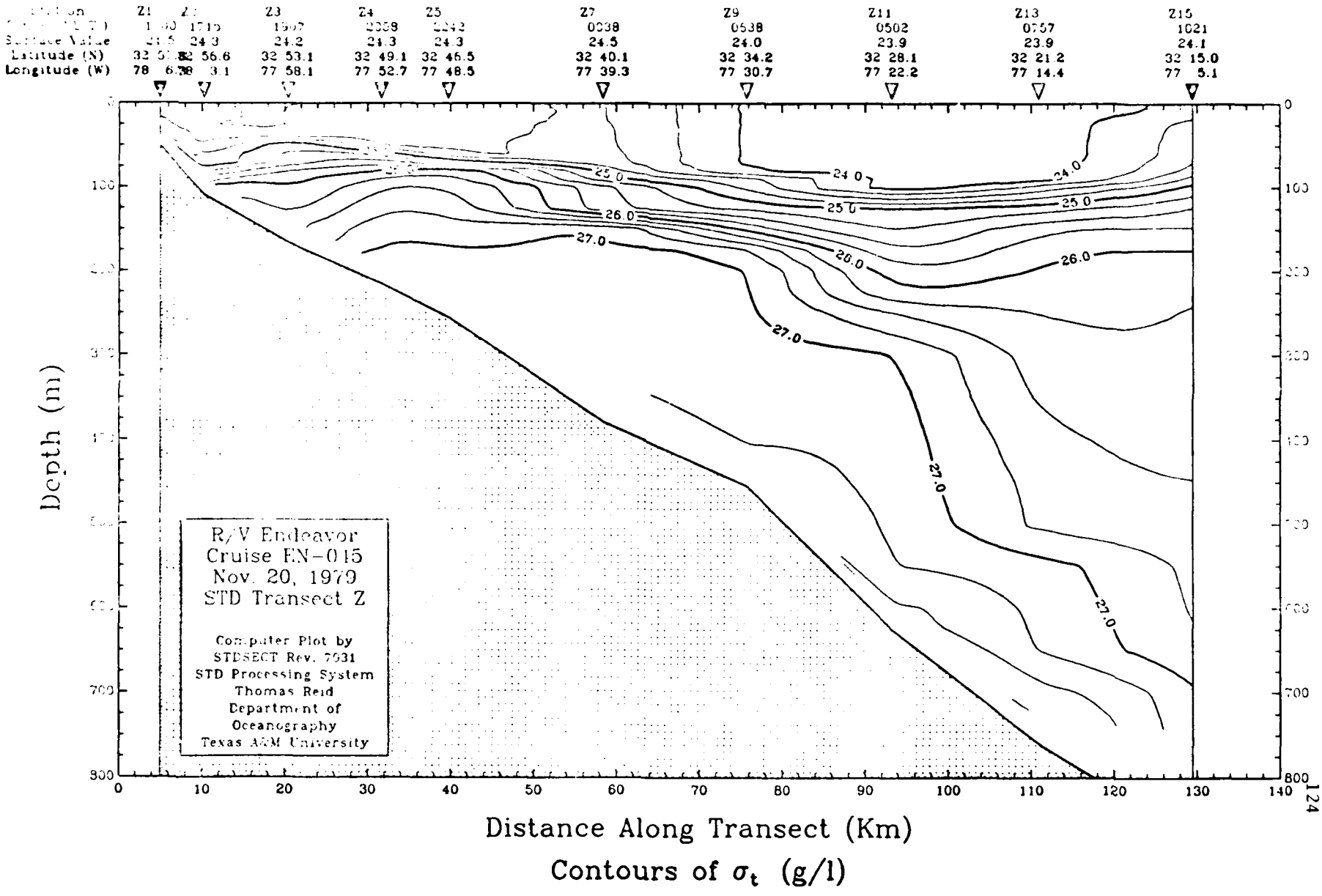
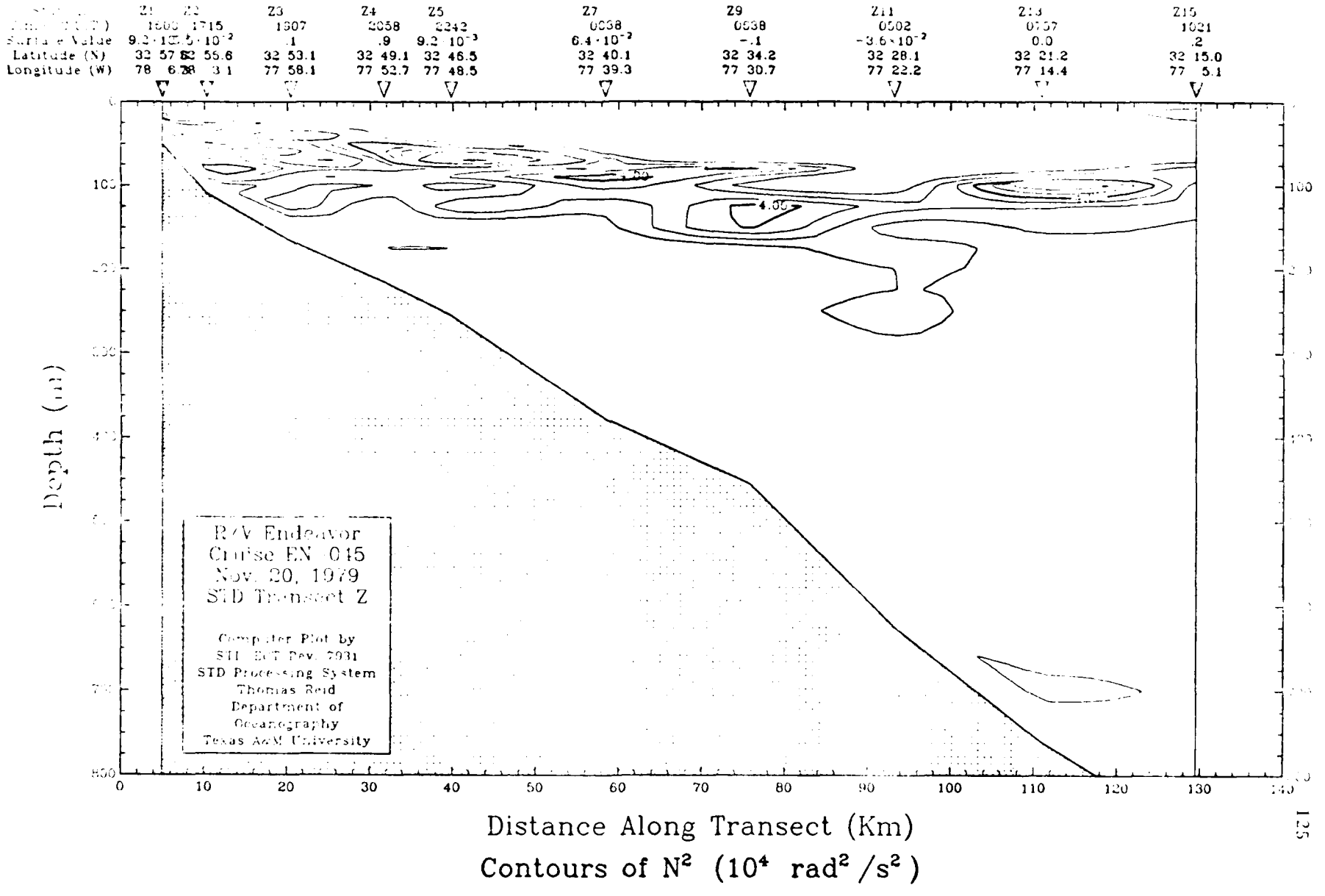


Figure 27. STD section contours of temperature, salinity and derived sigma-t, and N^2 fields for Transect Z. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units and 0.5×10^{-4} $rad^2 s^{-2}$, respectively. This figure is continued on the next 3 pages



Contours of Salinity (‰)


Station Z1 Z3 Z4 Z5 Z7 Z9 Z11 Z13 Z15
Time (G.M.T.) 1715 1507 2038 2242 0038 0538 0502 0757 1021
Surface Value 24.3 24.2 24.3 24.3 24.5 24.0 23.9 23.9 24.1
Latitude (N) 32 56.6 32 53.1 32 49.1 32 46.5 32 40.1 32 34.2 32 28.1 32 21.2 32 15.0
Longitude (W) 78 3.1 77 58.1 77 52.7 77 48.5 77 39.3 77 30.7 77 22.2 77 14.4 77 5.1
24.0
25.0
26.0
27.0
R/V Endeavor
Cruise EN-015
Nov. 20, 1979
STD Transect Z
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Depth (m)
0
100
200
300
400
500
600
700
800
10
20
30
40
50
60
70
80
90
100
110
120
130
140
Distance Along Transect (Km)
Contours of σ_t (g/l)


Z1 Z2 Z3 Z4 Z5 Z7 Z9 Z11 Z13 Z15
1606 1715 1807 2058 2242 0038 0038 0502 0757 1021
Surface Value .2
Latitude (N) 32 53.1 32 49.1 32 46.5 32 40.1 32 34.2 32 28.1 32 21.2 32 15.0
Longitude (W) 77 58.1 77 52.7 77 48.5 77 39.3 77 30.7 77 22.2 77 14.4 77 5.1
4.00
R/V Endeavor
Cruise EN 015
Nov. 20, 1979
STD Transect Z
Computer Plot by
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Depth (m)
0 10 20 30 40 50 60 70 80 90 100 110 120 130
Distance Along Transect (Km)
Contours of N² (10⁴ rad²/s²)

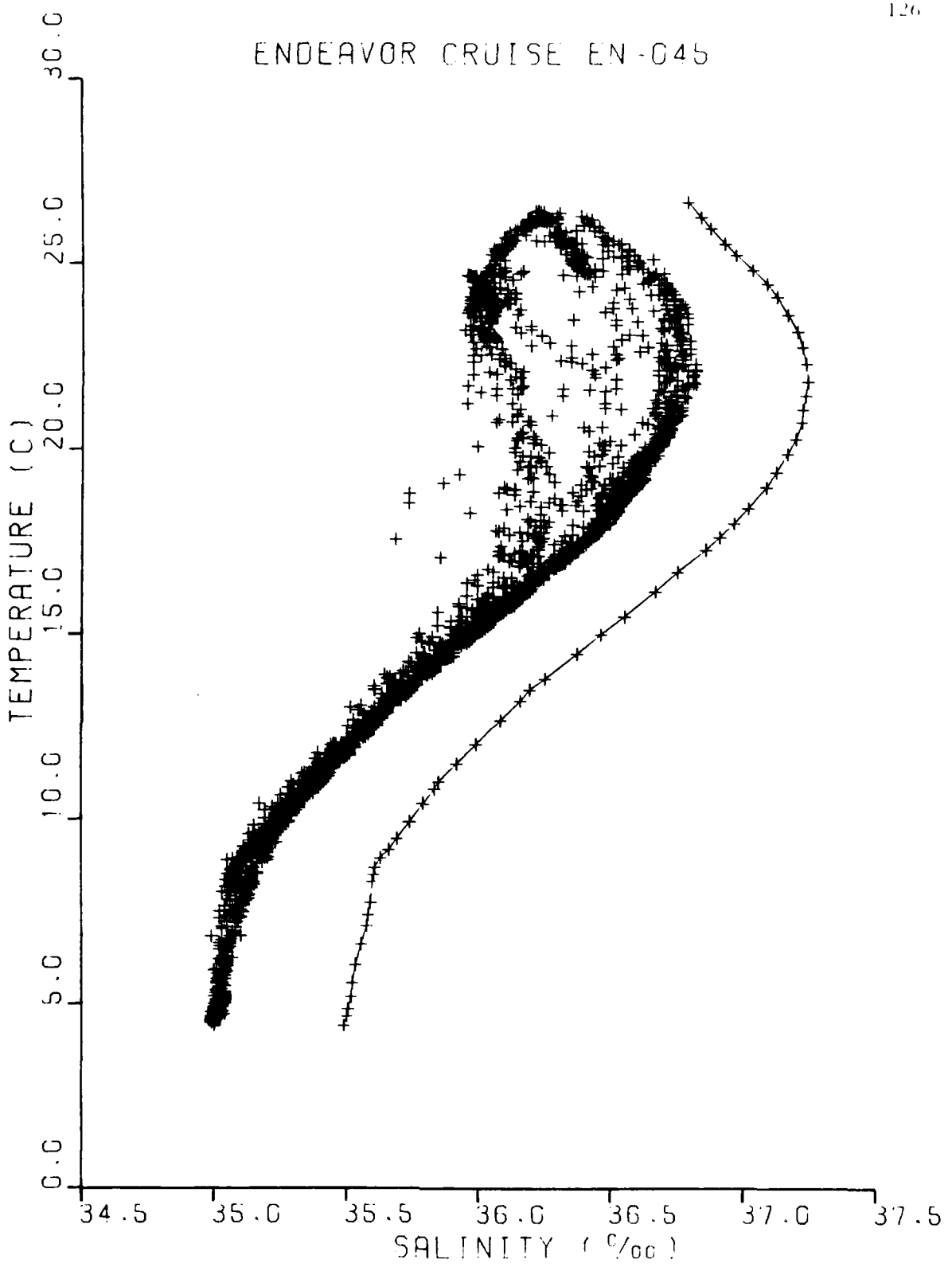


Figure 28. T-S diagram showing all STD points for EN-045 (crosses) and the resulting T-S correlation line fit by spline interpolation, which has been displaced to the right by 0.5‰. The stations used to generate this T-S correlation are listed in section 2.3.

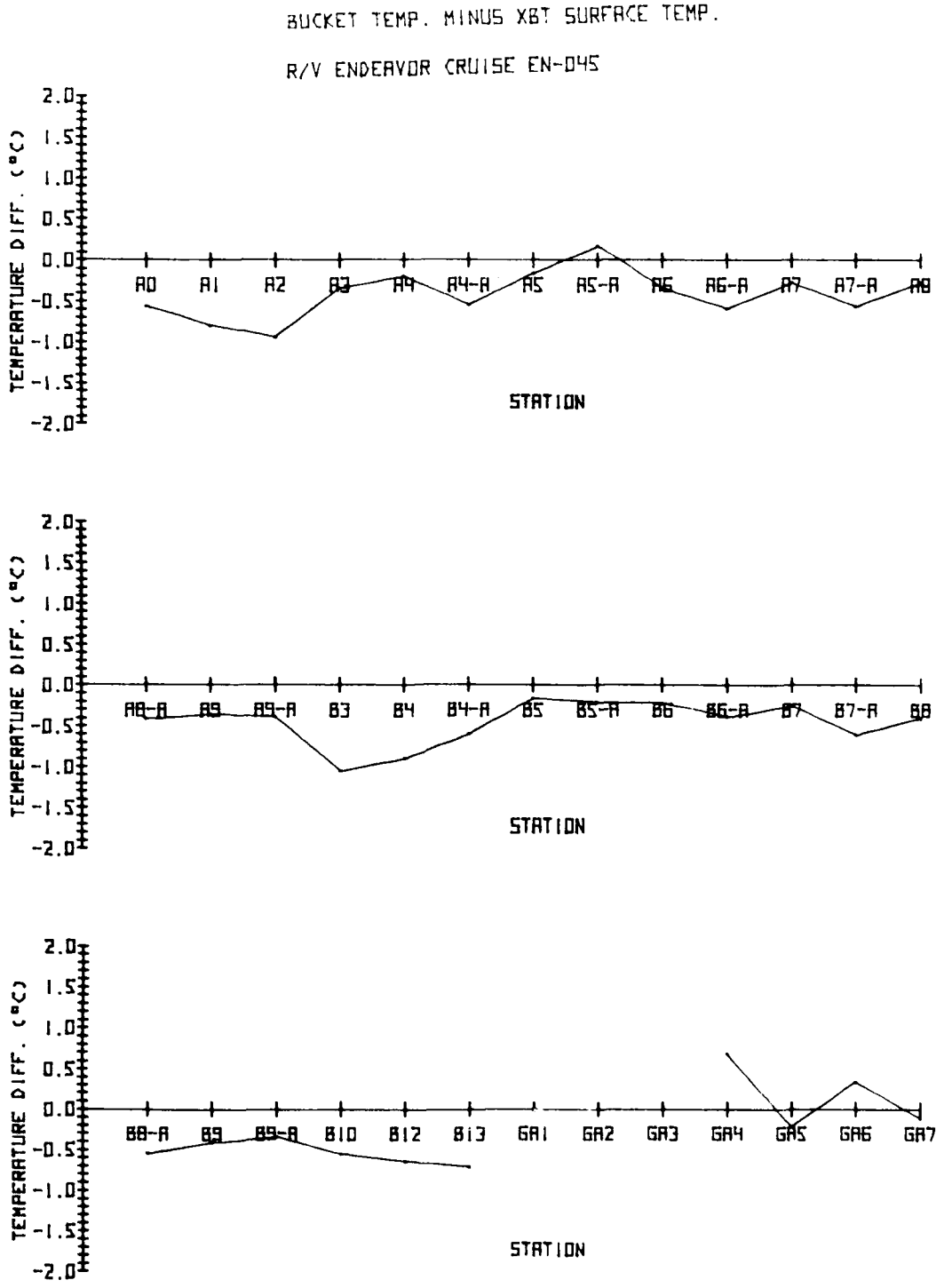
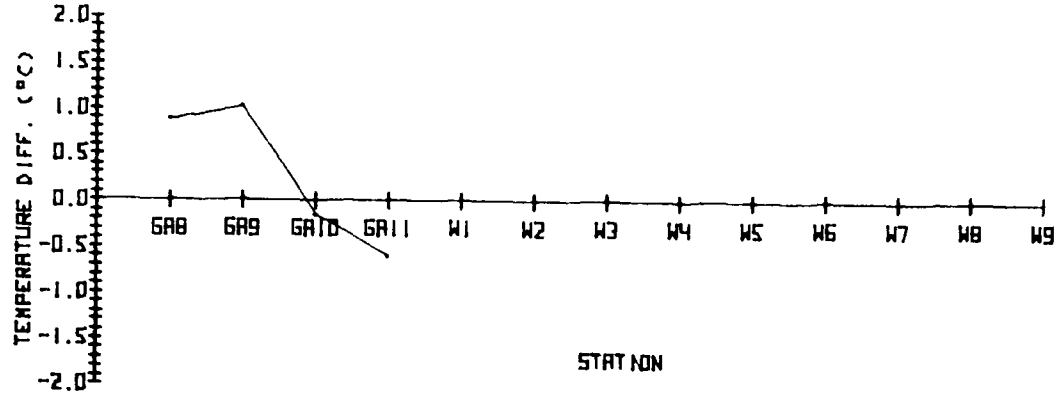
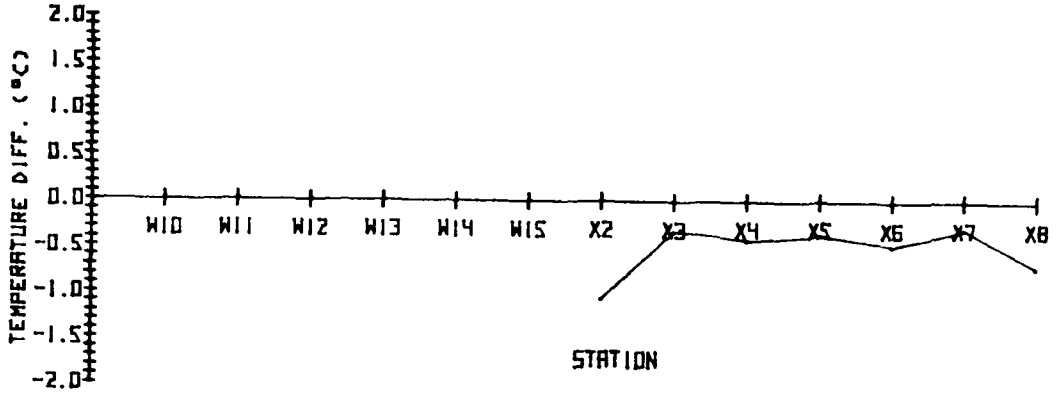


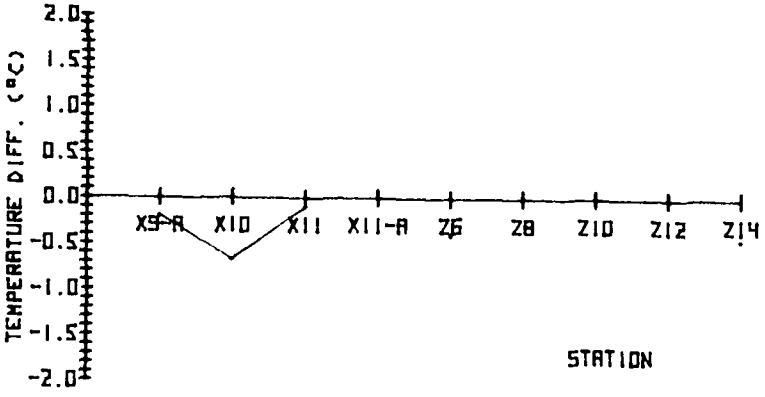
Figure 29. Comparison of surface bucket and XBT surface temperatures for EN-045. This figure is continued on the next page.

BUCKET TEMP. MINUS XBT SURFACE TEMP.

R/V ENDEAVOR CRUISE EN-045







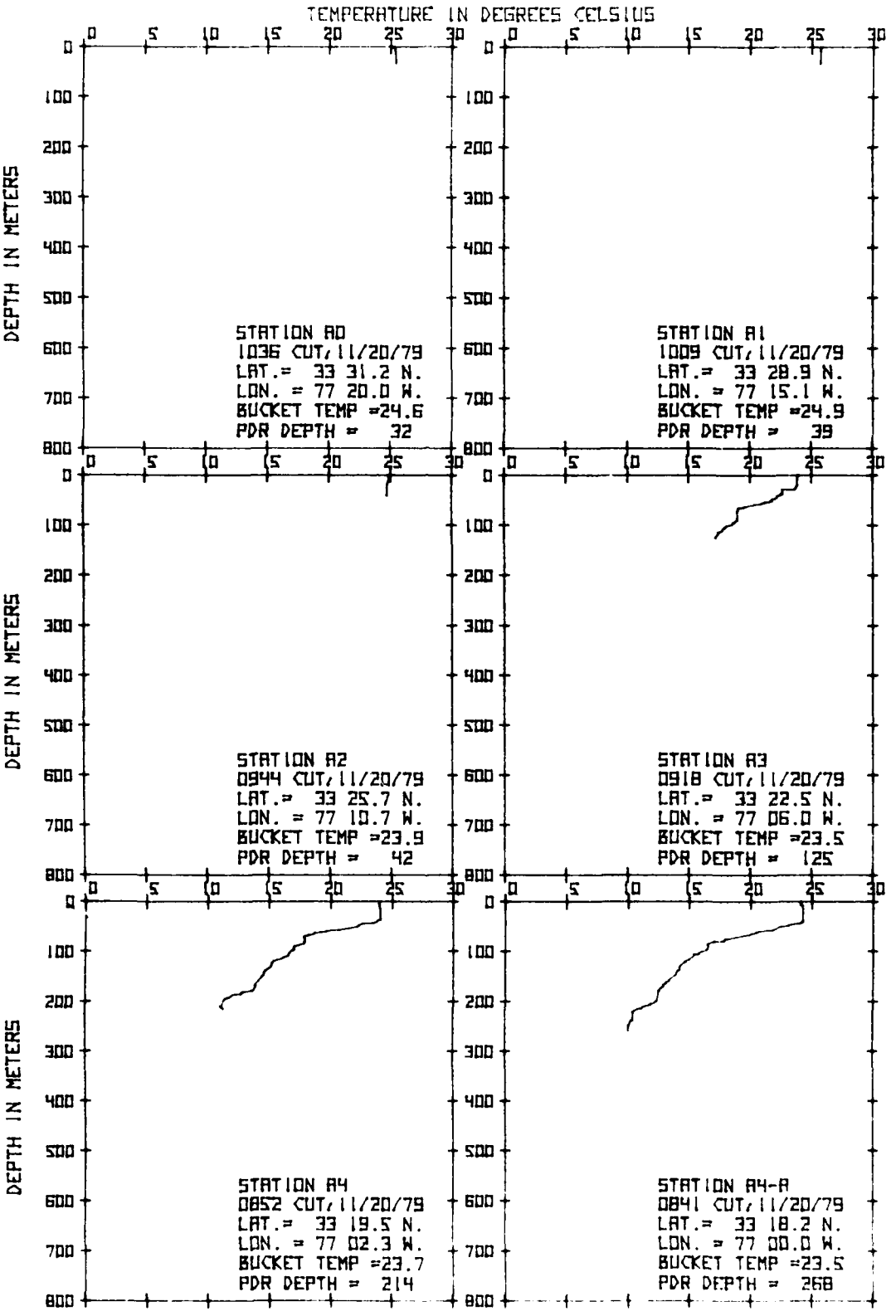
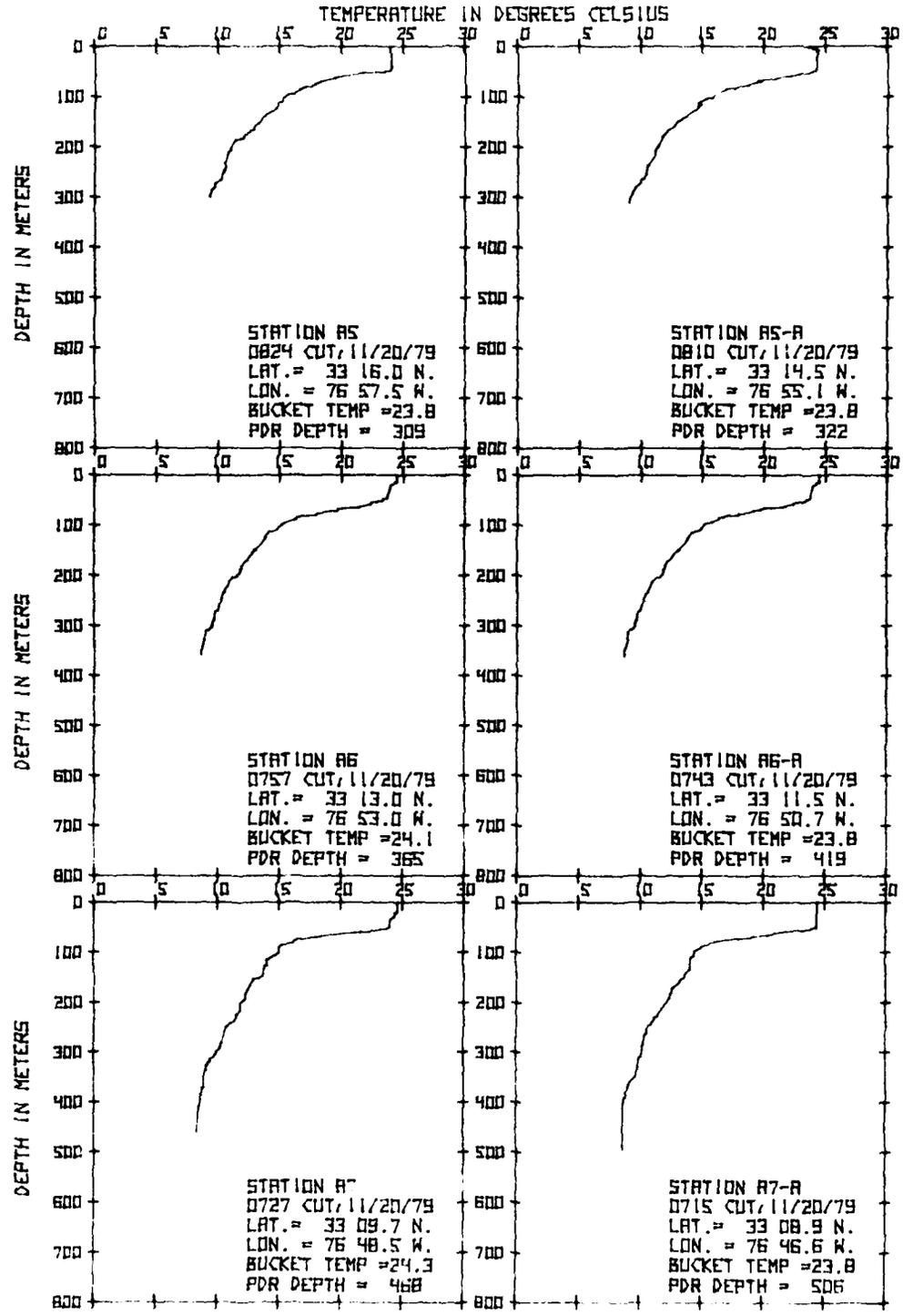
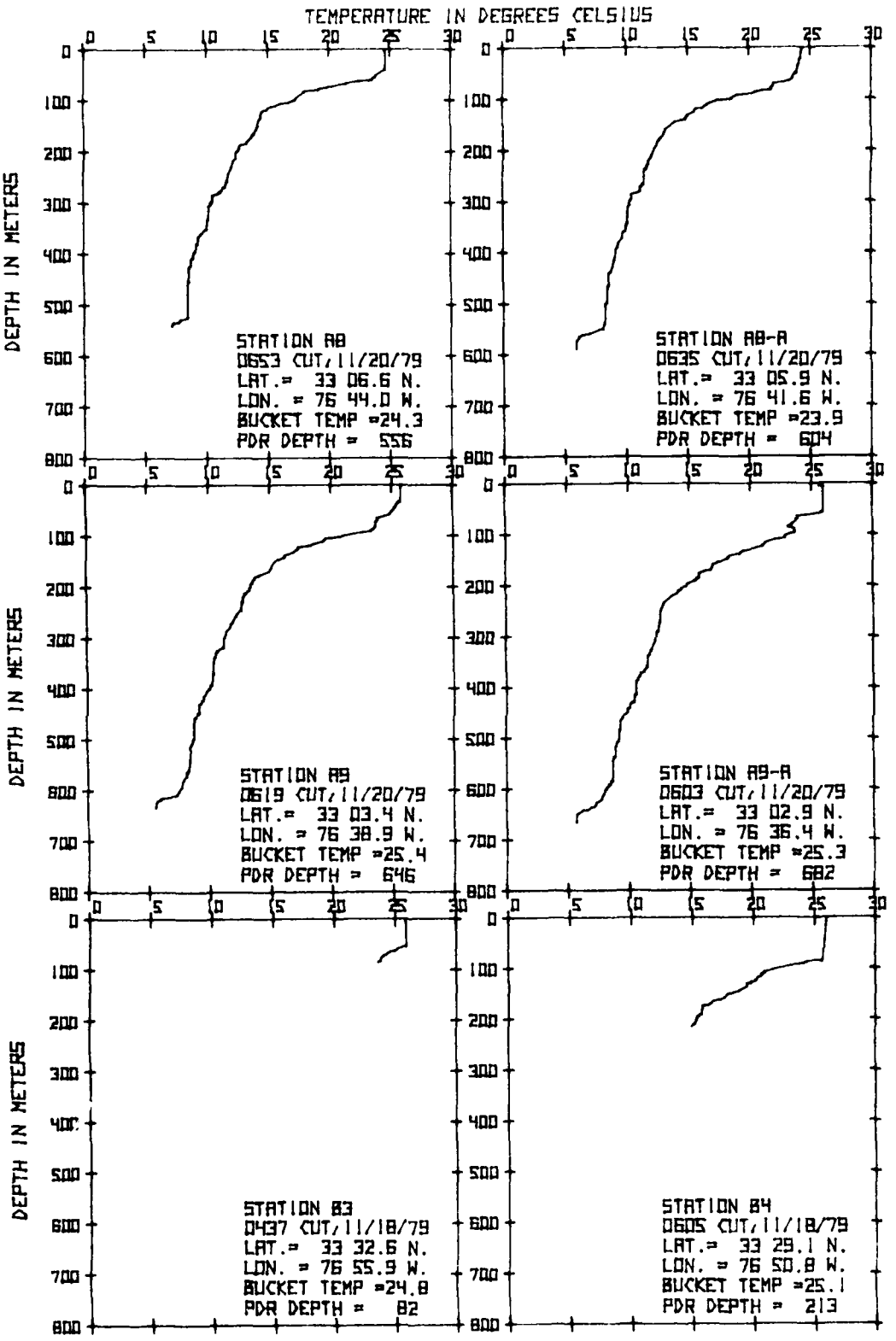
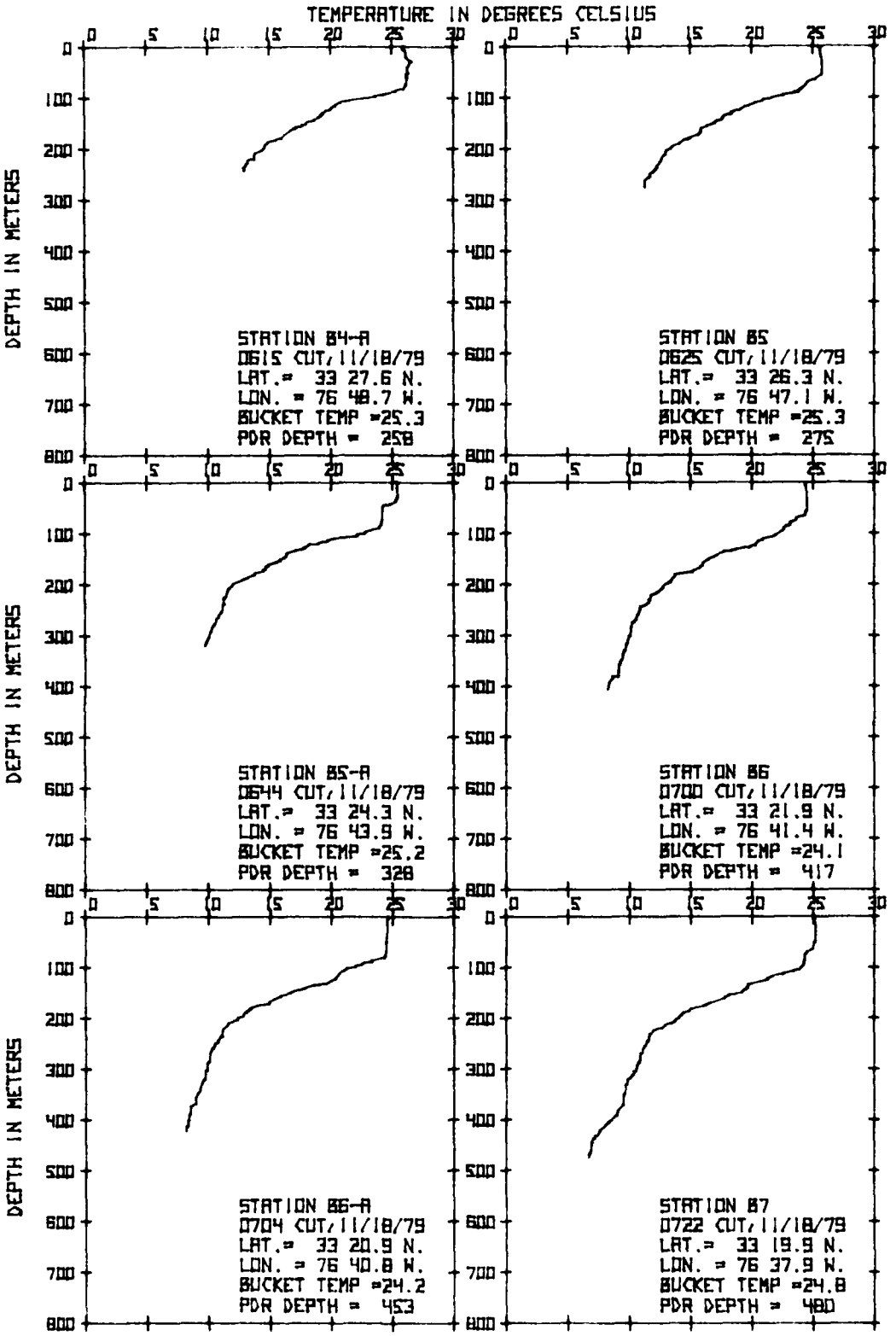
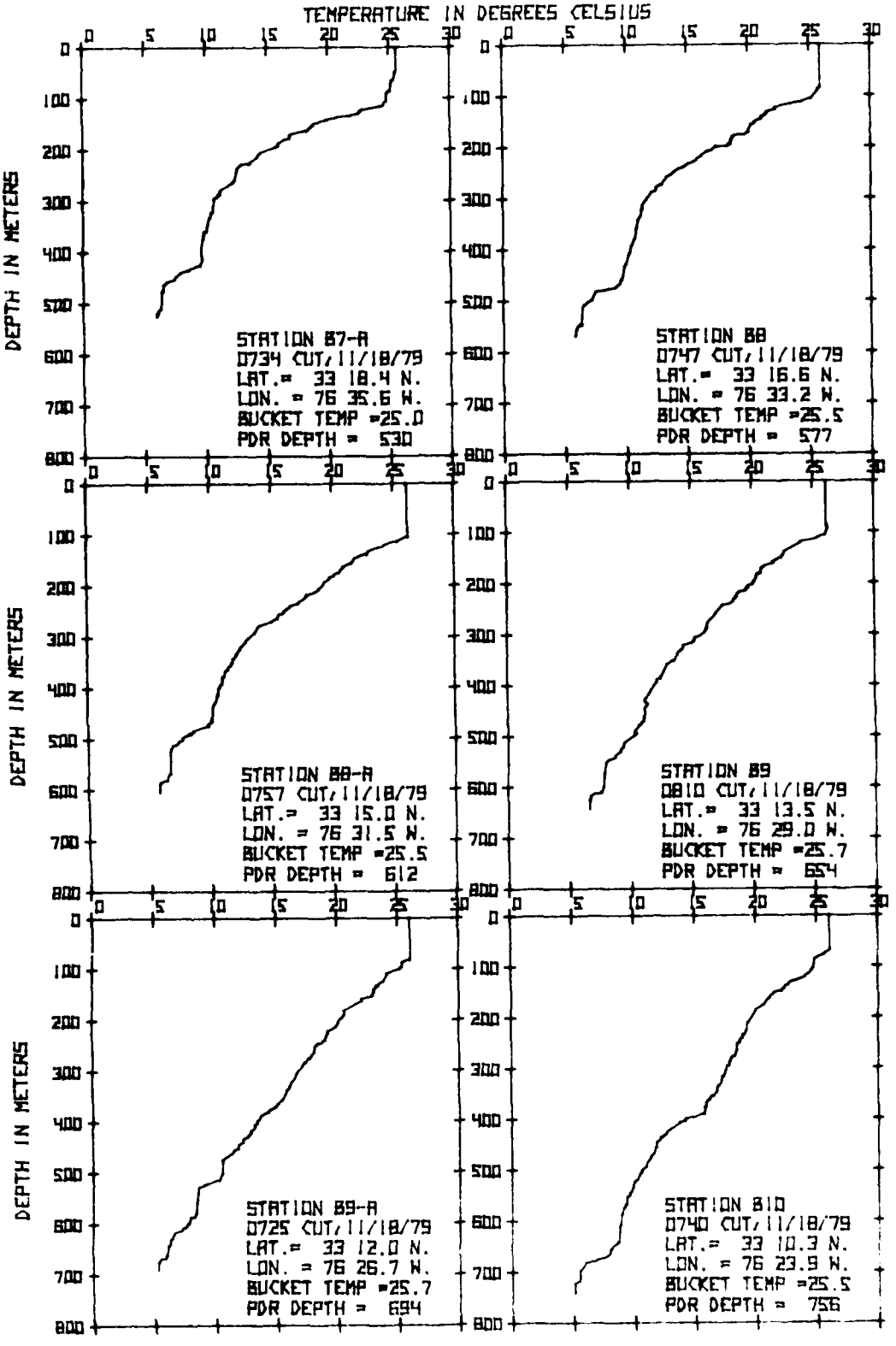


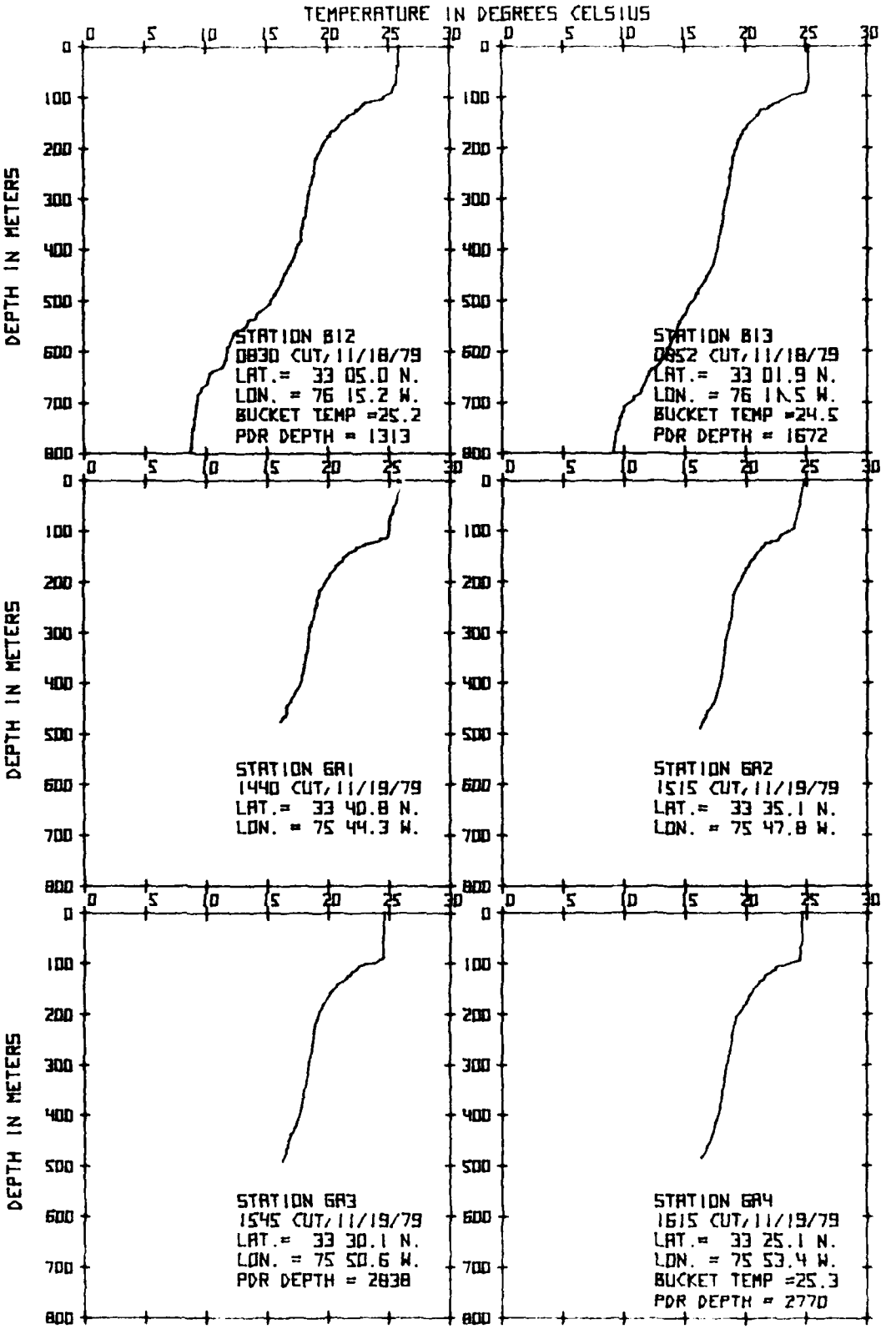
Figure 30. Individual XBT station temperature profiles. Station locations are shown in Figure 20. The profiles have not been forced to agree with surface bucket temperatures. This figure is continued on the next 12 pages.

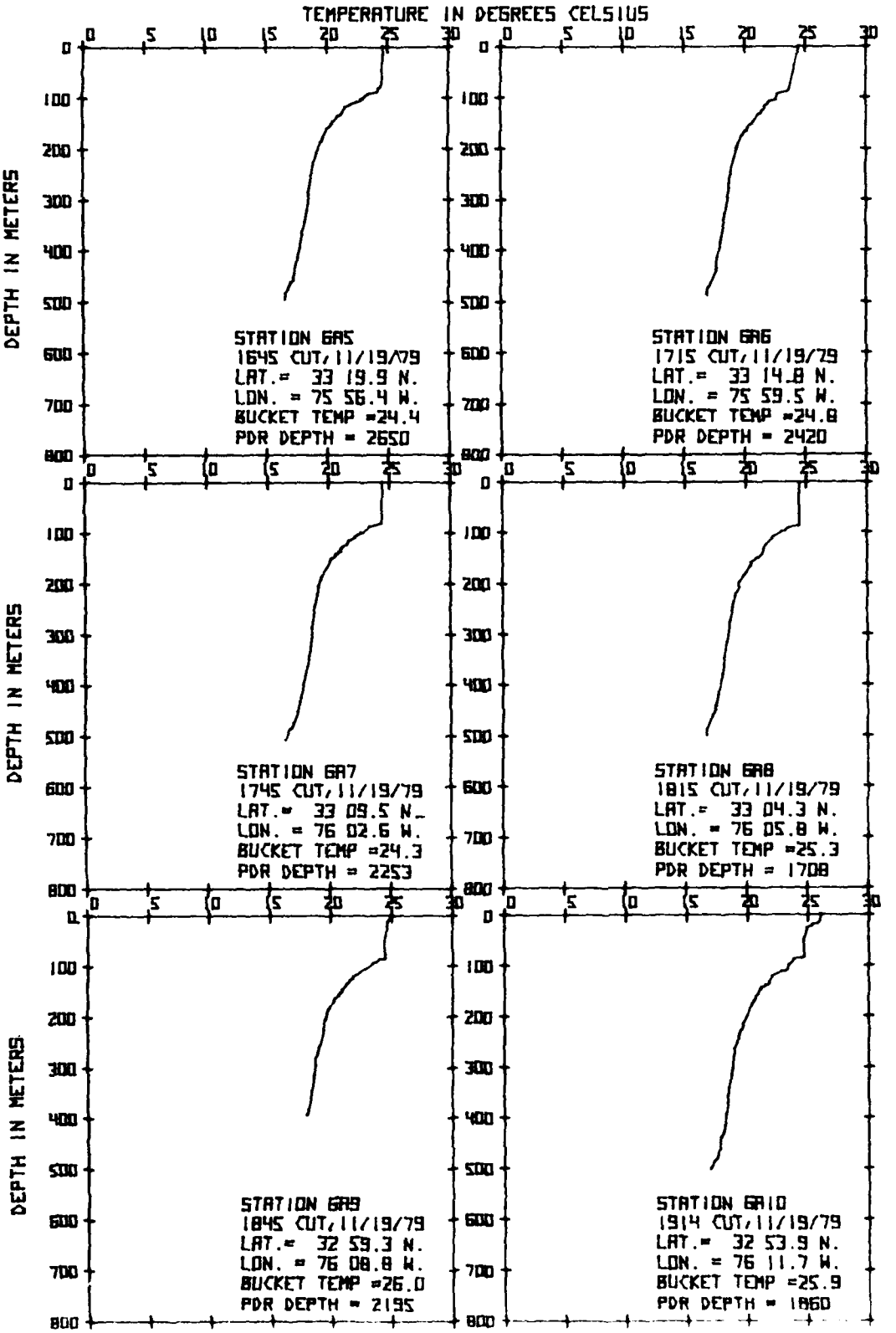

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION A5
0824 CUT, 11/20/79
LAT.= 33 16.0 N.
LON. = 76 57.5 W.
BUCKET TEMP =23.8
PDR DEPTH = 309
STATION A5-A
0810 CUT, 11/20/79
LAT.= 33 14.5 N.
LON. = 76 55.1 W.
BUCKET TEMP =23.8
PDR DEPTH = 322
STATION A6
0757 CUT, 11/20/79
LAT.= 33 13.0 N.
LON. = 76 53.0 W.
BUCKET TEMP =24.1
PDR DEPTH = 365
STATION A6-A
0743 CUT, 11/20/79
LAT.= 33 11.5 N.
LON. = 76 50.7 W.
BUCKET TEMP =23.8
PDR DEPTH = 419
STATION A7
0727 CUT, 11/20/79
LAT.= 33 09.7 N.
LON. = 76 48.5 W.
BUCKET TEMP =24.3
PDR DEPTH = 468
STATION A7-A
0715 CUT, 11/20/79
LAT.= 33 08.9 N.
LON. = 76 46.6 W.
BUCKET TEMP =23.8
PDR DEPTH = 506

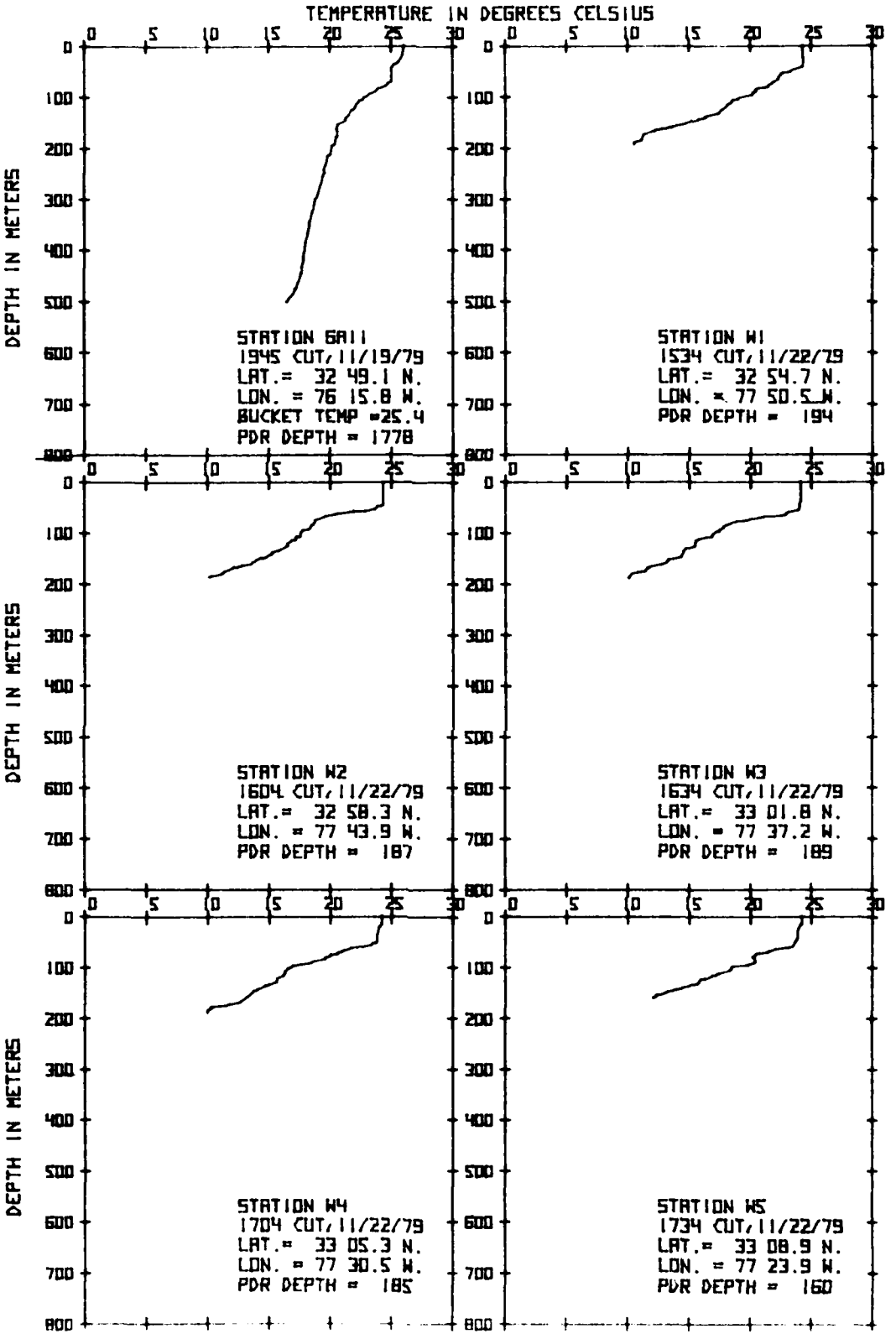

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION A8
0653 CUT, 11/20/79
LAT.= 33 06.6 N.
LON. = 76 44.0 W.
BUCKET TEMP =24.3
PDR DEPTH = 556
STATION A8-A
0635 CUT, 11/20/79
LAT.= 33 05.9 N.
LON. = 76 41.6 W.
BUCKET TEMP =23.9
PDR DEPTH = 604
STATION A9
0619 CUT, 11/20/79
LAT.= 33 03.4 N.
LON. = 76 38.9 W.
BUCKET TEMP =25.4
PDR DEPTH = 646
STATION A9-A
0603 CUT, 11/20/79
LAT.= 33 02.9 N.
LON. = 76 36.4 W.
BUCKET TEMP =25.3
PDR DEPTH = 682
STATION B3
0437 CUT, 11/18/79
LAT.= 33 32.6 N.
LON. = 76 55.9 W.
BUCKET TEMP =24.8
PDR DEPTH = 82
STATION B4
0605 CUT, 11/18/79
LAT.= 33 29.1 N.
LON. = 76 50.8 W.
BUCKET TEMP =25.1
PDR DEPTH = 213

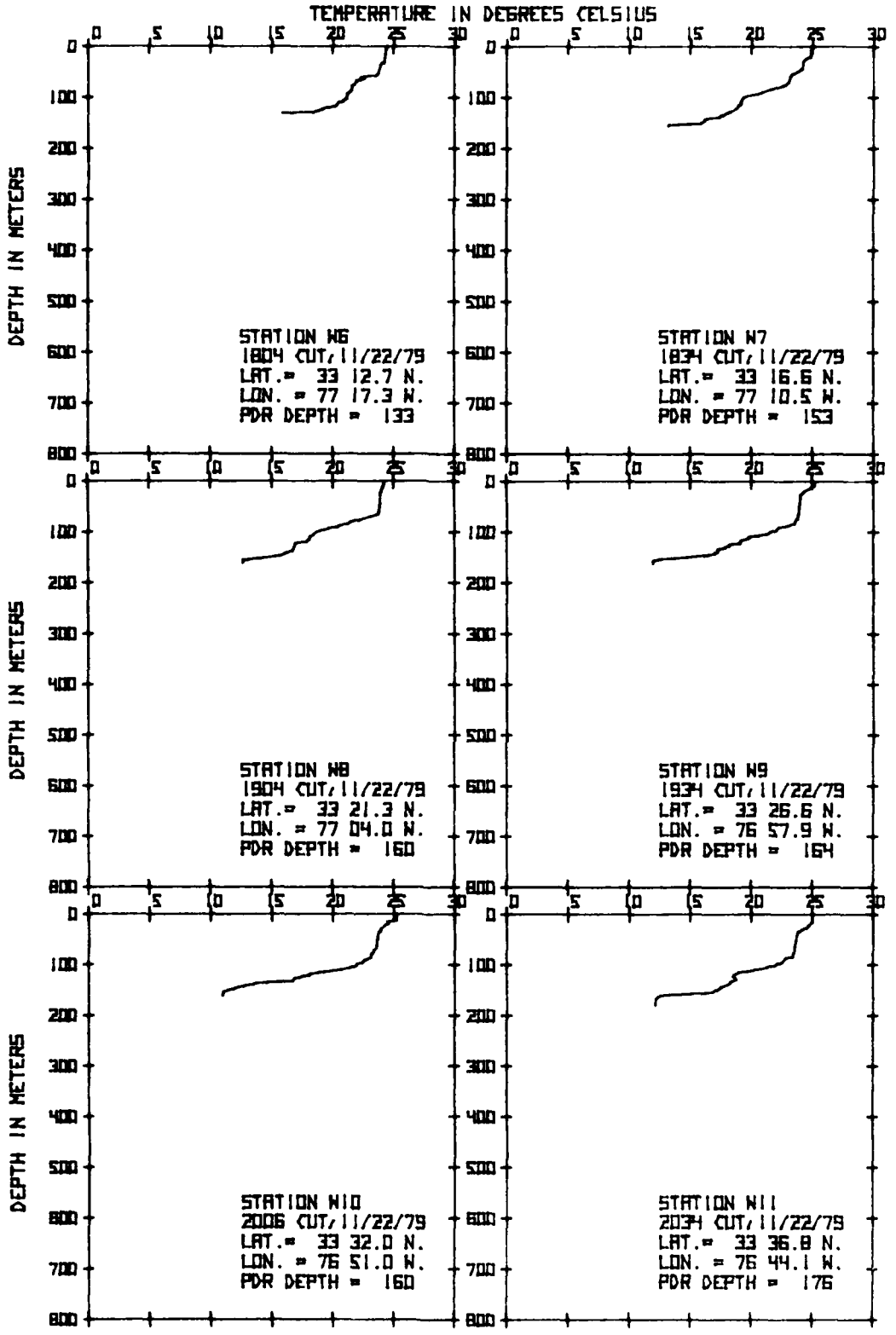

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION 84-A
0615 CUT, 11/18/79
LAT.= 33 27.6 N.
LON. = 76 48.7 W.
BUCKET TEMP =25.3
PDR DEPTH = 258
STATION 85
0625 CUT, 11/18/79
LAT.= 33 26.3 N.
LON. = 76 47.1 W.
BUCKET TEMP =25.3
PDR DEPTH = 275
STATION 85-A
0644 CUT, 11/18/79
LAT.= 33 24.3 N.
LON. = 76 43.9 W.
BUCKET TEMP =25.2
PDR DEPTH = 328
STATION 86
0700 CUT, 11/18/79
LAT.= 33 21.9 N.
LON. = 76 41.4 W.
BUCKET TEMP =24.1
PDR DEPTH = 417
STATION 86-A
0704 CUT, 11/18/79
LAT.= 33 20.9 N.
LON. = 76 40.8 W.
BUCKET TEMP =24.2
PDR DEPTH = 453
STATION 87
0722 CUT, 11/18/79
LAT.= 33 19.9 N.
LON. = 76 37.9 W.
BUCKET TEMP =24.8
PDR DEPTH = 480

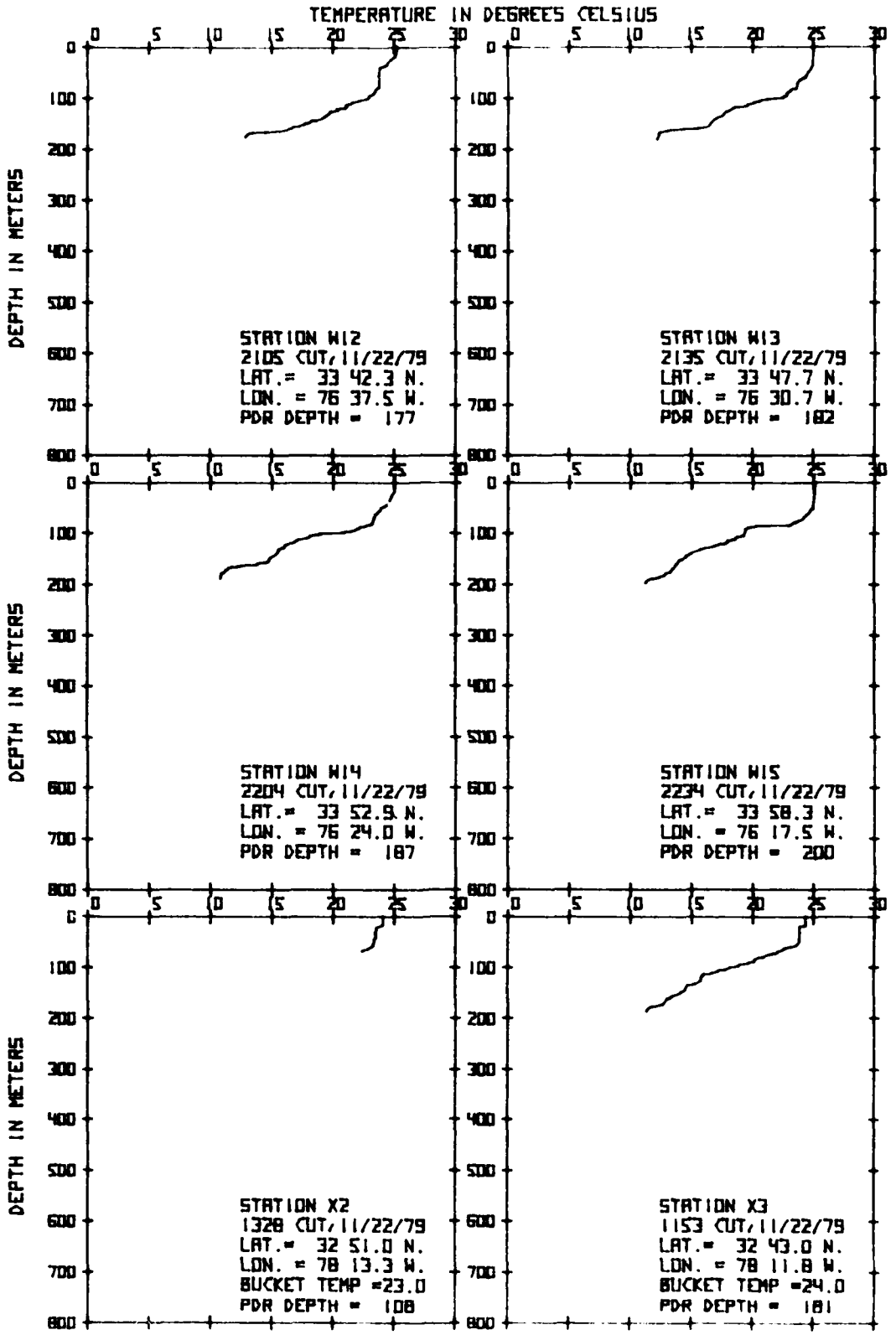

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION 87-A
0734 CUT, 11/18/79
LAT.= 33 18.4 N.
LON. = 76 35.6 W.
BUCKET TEMP =25.0
PDR DEPTH = 530
STATION 88
0747 CUT, 11/18/79
LAT.= 33 16.6 N.
LON. = 76 33.2 W.
BUCKET TEMP =25.5
PDR DEPTH = 577
STATION 88-A
0757 CUT, 11/18/79
LAT.= 33 15.0 N.
LON. = 76 31.5 W.
BUCKET TEMP =25.5
PDR DEPTH = 612
STATION 89
0810 CUT, 11/18/79
LAT.= 33 13.5 N.
LON. = 76 29.0 W.
BUCKET TEMP =25.7
PDR DEPTH = 654
STATION 89-A
0725 CUT, 11/18/79
LAT.= 33 12.0 N.
LON. = 76 26.7 W.
BUCKET TEMP =25.7
PDR DEPTH = 694
STATION 810
0740 CUT, 11/18/79
LAT.= 33 10.3 N.
LON. = 76 23.9 W.
BUCKET TEMP =25.5
PDR DEPTH = 756

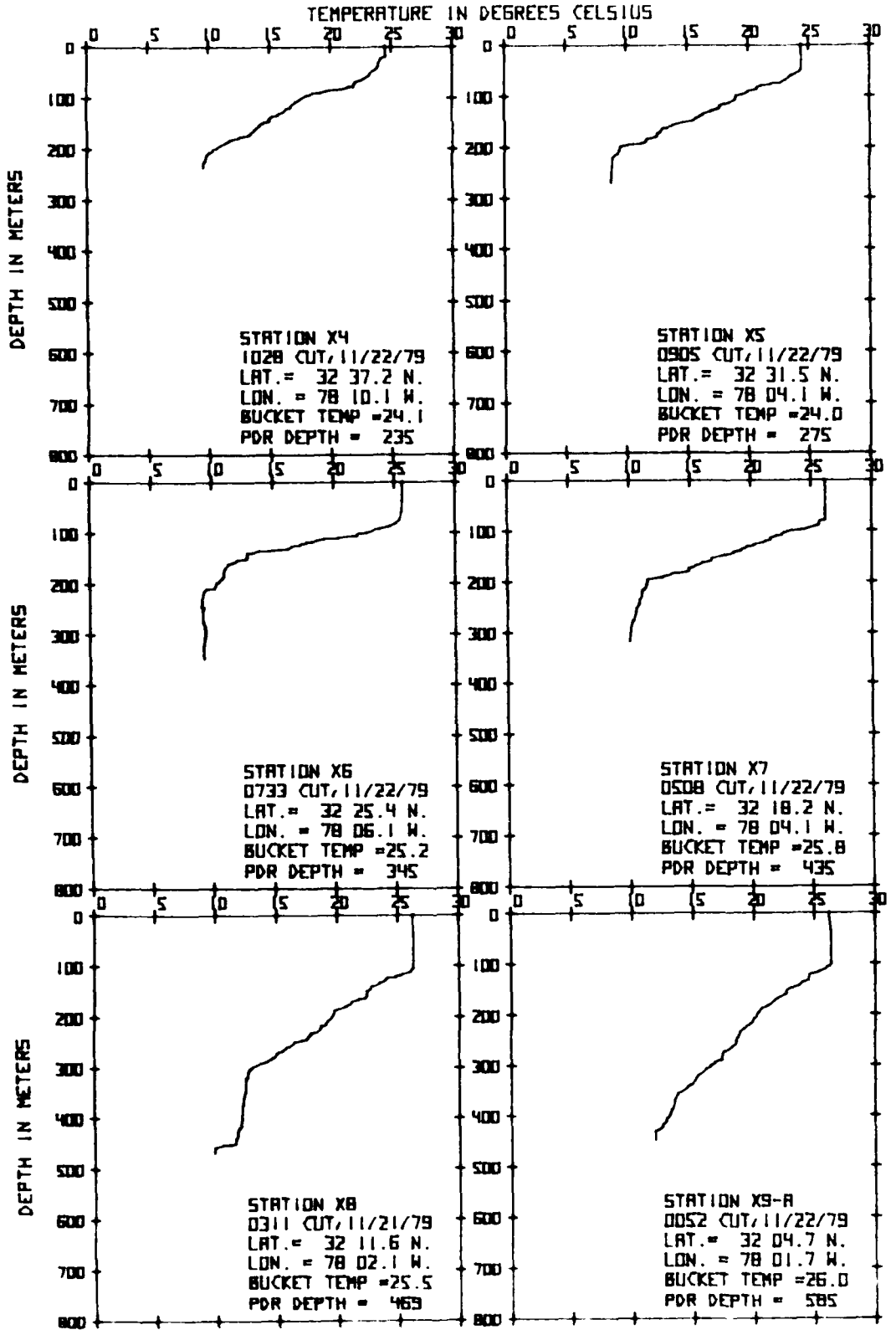

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION B12
0830 CUT, 11/18/79
LAT.= 33 05.0 N.
LON. = 76 15.2 W.
BUCKET TEMP =25.2
PDR DEPTH = 1313
STATION B13
0852 CUT, 11/18/79
LAT.= 33 01.9 N.
LON. = 76 14.5 W.
BUCKET TEMP =24.5
PDR DEPTH = 1672
STATION GA1
1440 CUT, 11/19/79
LAT.= 33 40.8 N.
LON. = 75 44.3 W.
STATION GA2
1515 CUT, 11/19/79
LAT.= 33 35.1 N.
LON. = 75 47.8 W.
STATION GA3
1545 CUT, 11/19/79
LAT.= 33 30.1 N.
LON. = 75 50.6 W.
PDR DEPTH = 2838
STATION GA4
1615 CUT, 11/19/79
LAT.= 33 25.1 N.
LON. = 75 53.4 W.
BUCKET TEMP =25.3
PDR DEPTH = 2770

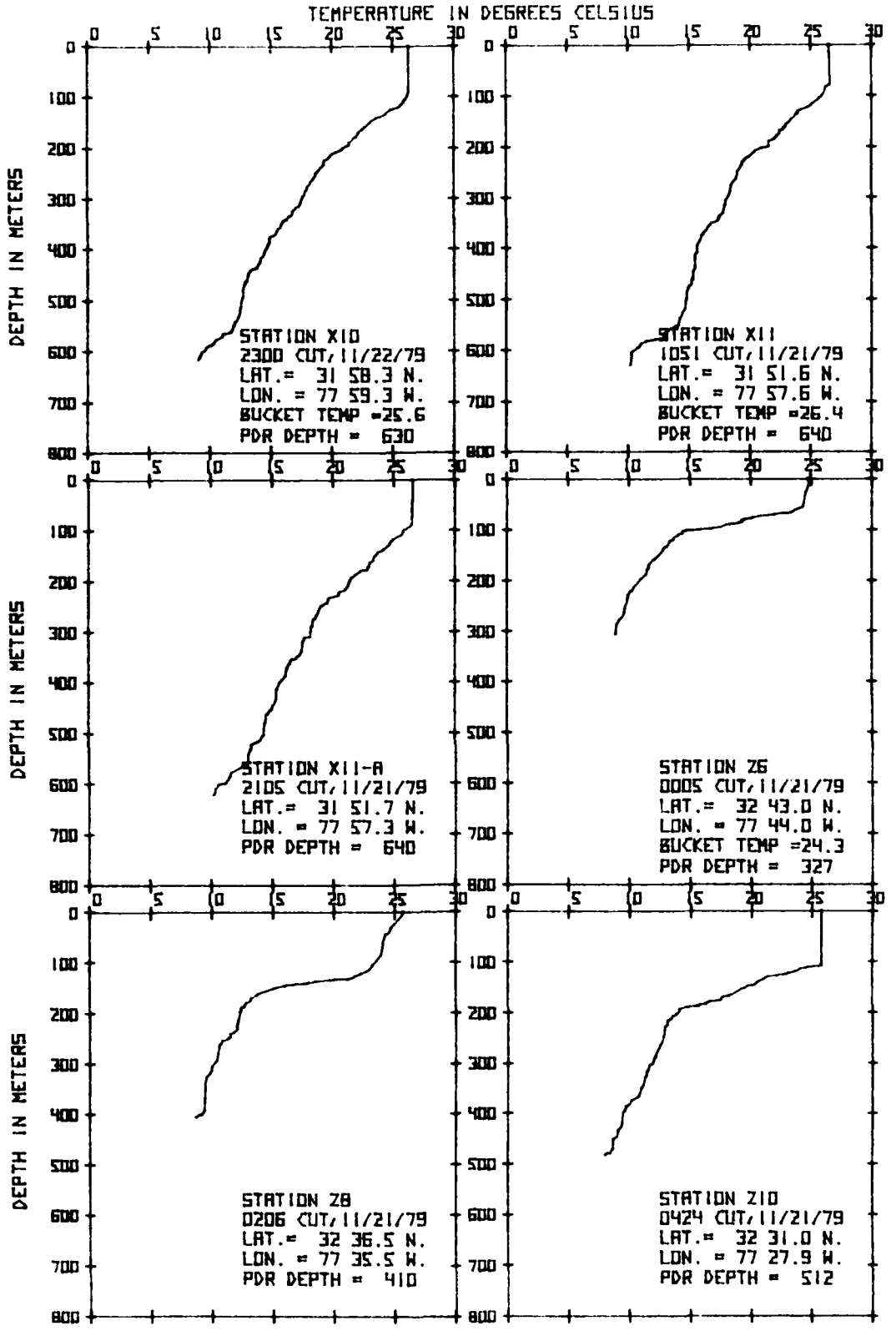

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION GA5
1645 CUT, 11/19/79
LAT.= 33 19.9 N.
LON. = 75 56.4 W.
BUCKET TEMP =24.4
PDR DEPTH = 2650
STATION GA6
1715 CUT, 11/19/79
LAT.= 33 14.8 N.
LON. = 75 59.5 W.
BUCKET TEMP =24.8
PDR DEPTH = 2420
STATION GA7
1745 CUT, 11/19/79
LAT.= 33 09.5 N.
LON. = 76 02.6 W.
BUCKET TEMP =24.3
PDR DEPTH = 2253
STATION GA8
1815 CUT, 11/19/79
LAT.= 33 04.3 N.
LON. = 76 05.8 W.
BUCKET TEMP =25.3
PDR DEPTH = 1708
STATION GA9
1845 CUT, 11/19/79
LAT.= 32 59.3 N.
LON. = 76 08.8 W.
BUCKET TEMP =26.0
PDR DEPTH = 2195
STATION GA10
1914 CUT, 11/19/79
LAT.= 32 53.9 N.
LON. = 76 11.7 W.
BUCKET TEMP =25.9
PDR DEPTH = 1860

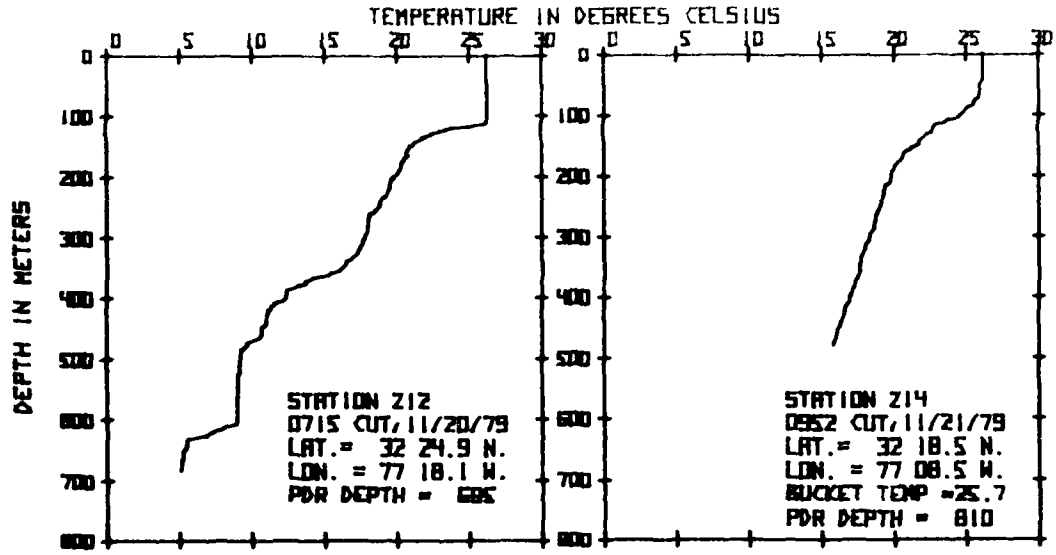

TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION GA11
1945 CUT, 11/19/79
LAT.= 32 49.1 N.
LON. = 76 15.8 W.
BUCKET TEMP =25.4
PDR DEPTH = 1778
STATION W1
1534 CUT, 11/22/79
LAT.= 32 54.7 N.
LON. = 77 50.5 W.
PDR DEPTH = 194
STATION W2
1604 CUT, 11/22/79
LAT.= 32 58.3 N.
LON. = 77 43.9 W.
PDR DEPTH = 187
STATION W3
1634 CUT, 11/22/79
LAT.= 33 01.8 N.
LON. = 77 37.2 W.
PDR DEPTH = 189
STATION W4
1704 CUT, 11/22/79
LAT.= 33 05.3 N.
LON. = 77 30.5 W.
PDR DEPTH = 185
STATION W5
1734 CUT, 11/22/79
LAT.= 33 08.9 N.
LON. = 77 23.9 W.
PDR DEPTH = 160


TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION W6
1804 CUT, 11/22/79
LAT.= 33 12.7 N.
LON. = 77 17.3 W.
PDR DEPTH = 133
STATION W7
1834 CUT, 11/22/79
LAT.= 33 16.6 N.
LON. = 77 10.5 W.
PDR DEPTH = 153
STATION W8
1904 CUT, 11/22/79
LAT.= 33 21.3 N.
LON. = 77 04.0 W.
PDR DEPTH = 160
STATION W9
1934 CUT, 11/22/79
LAT.= 33 26.6 N.
LON. = 76 57.9 W.
PDR DEPTH = 164
STATION W10
2006 CUT, 11/22/79
LAT.= 33 32.0 N.
LON. = 76 51.0 W.
PDR DEPTH = 160
STATION W11
2034 CUT, 11/22/79
LAT.= 33 36.8 N.
LON. = 76 44.1 W.
PDR DEPTH = 176


TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION W12
2105 CUT, 11/22/79
LAT.= 33 42.3 N.
LON. = 76 37.5 W.
PDR DEPTH = 177
STATION W13
2135 CUT, 11/22/79
LAT.= 33 47.7 N.
LON. = 76 30.7 W.
PDR DEPTH = 182
STATION W14
2204 CUT, 11/22/79
LAT.= 33 52.9 N.
LON. = 76 24.0 W.
PDR DEPTH = 187
STATION W15
2234 CUT, 11/22/79
LAT.= 33 58.3 N.
LON. = 76 17.5 W.
PDR DEPTH = 200
STATION X2
1328 CUT, 11/22/79
LAT.= 32 51.0 N.
LON. = 78 13.3 W.
BUCKET TEMP =23.0
PDR DEPTH = 108
STATION X3
1153 CUT, 11/22/79
LAT.= 32 43.0 N.
LON. = 78 11.8 W.
BUCKET TEMP =24.0
PDR DEPTH = 181


TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION X4
1028 CUT, 11/22/79
LAT.= 32 37.2 N.
LON. = 78 10.1 W.
BUCKET TEMP =24.1
PDR DEPTH = 235
STATION X5
0905 CUT, 11/22/79
LAT.= 32 31.5 N.
LON. = 78 04.1 W.
BUCKET TEMP =24.0
PDR DEPTH = 275
STATION X6
0733 CUT, 11/22/79
LAT.= 32 25.4 N.
LON. = 78 06.1 W.
BUCKET TEMP =25.2
PDR DEPTH = 345
STATION X7
0508 CUT, 11/22/79
LAT.= 32 18.2 N.
LON. = 78 04.1 W.
BUCKET TEMP =25.8
PDR DEPTH = 435
STATION X8
0311 CUT, 11/21/79
LAT.= 32 11.6 N.
LON. = 78 02.1 W.
BUCKET TEMP =25.5
PDR DEPTH = 469
STATION X9-A
0052 CUT, 11/22/79
LAT.= 32 04.7 N.
LON. = 78 01.7 W.
BUCKET TEMP =26.0
PDR DEPTH = 585


TEMPERATURE IN DEGREES CELSIUS
DEPTH IN METERS
STATION X10
2300 CUT, 11/22/79
LAT.= 31 58.3 N.
LON. = 77 59.3 W.
BUCKET TEMP =25.6
PDR DEPTH = 630
STATION X11
1051 CUT, 11/21/79
LAT.= 31 51.6 N.
LON. = 77 57.6 W.
BUCKET TEMP =26.4
PDR DEPTH = 640
STATION X11-A
2105 CUT, 11/21/79
LAT.= 31 51.7 N.
LON. = 77 57.3 W.
PDR DEPTH = 640
STATION Z6
0005 CUT, 11/21/79
LAT.= 32 43.0 N.
LON. = 77 44.0 W.
BUCKET TEMP =24.3
PDR DEPTH = 327
STATION Z8
0206 CUT, 11/21/79
LAT.= 32 36.5 N.
LON. = 77 35.5 W.
PDR DEPTH = 410
STATION Z10
0424 CUT, 11/21/79
LAT.= 32 31.0 N.
LON. = 77 27.9 W.
PDR DEPTH = 512


TEMPERATURE IN DEGREES CELSIUS
0
5
10
15
20
25
30
DEPTH IN METERS
0
100
200
300
400
500
600
700
800
STATION Z12
0715 CUT, 11/20/79
LAT.= 32 24.9 N.
LON. = 77 18.1 W.
PDR DEPTH = 685
STATION Z14
0952 CUT, 11/21/79
LAT.= 32 18.5 N.
LON. = 77 08.5 W.
BUCKET TEMP =25.7
PDR DEPTH = 810

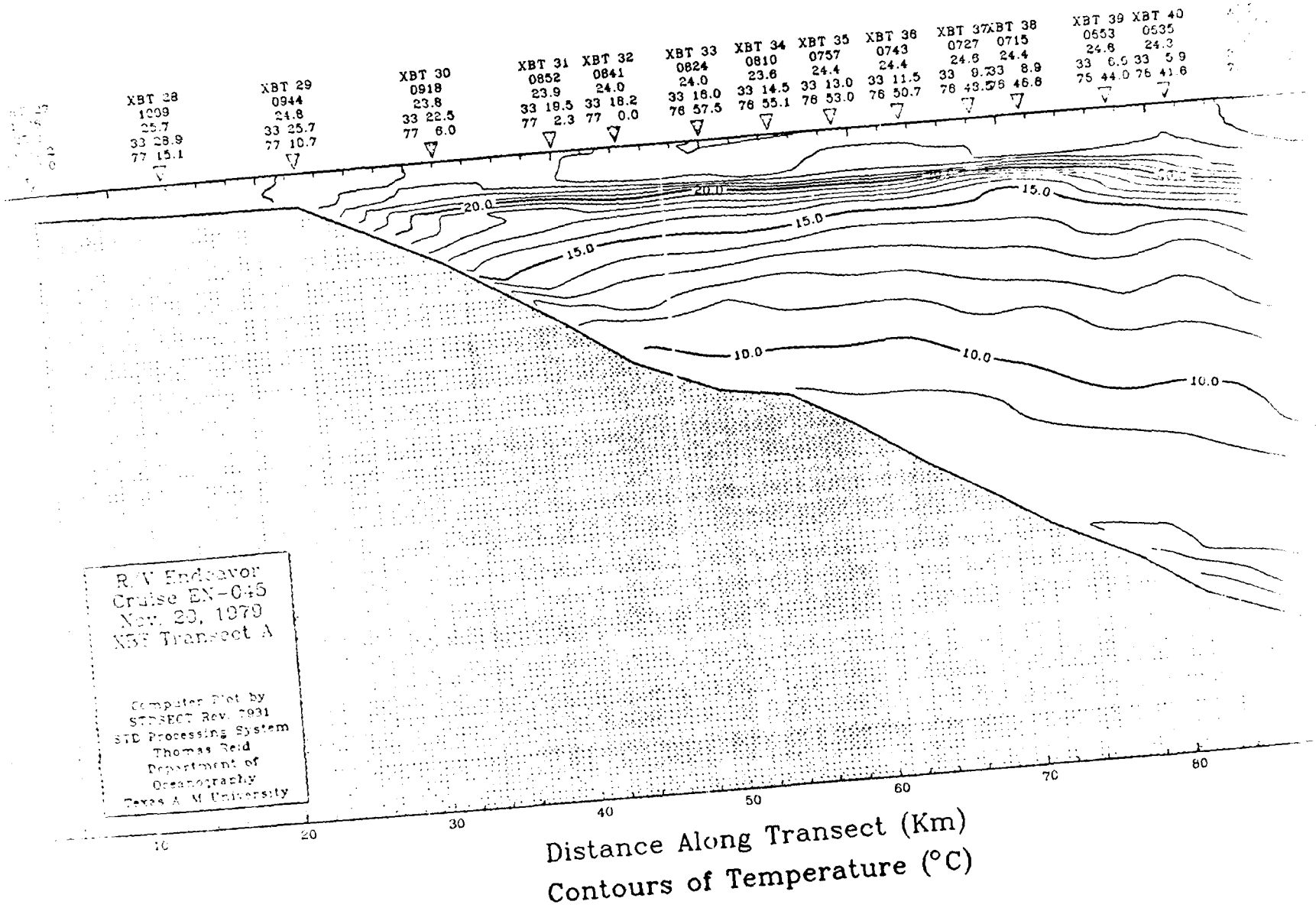
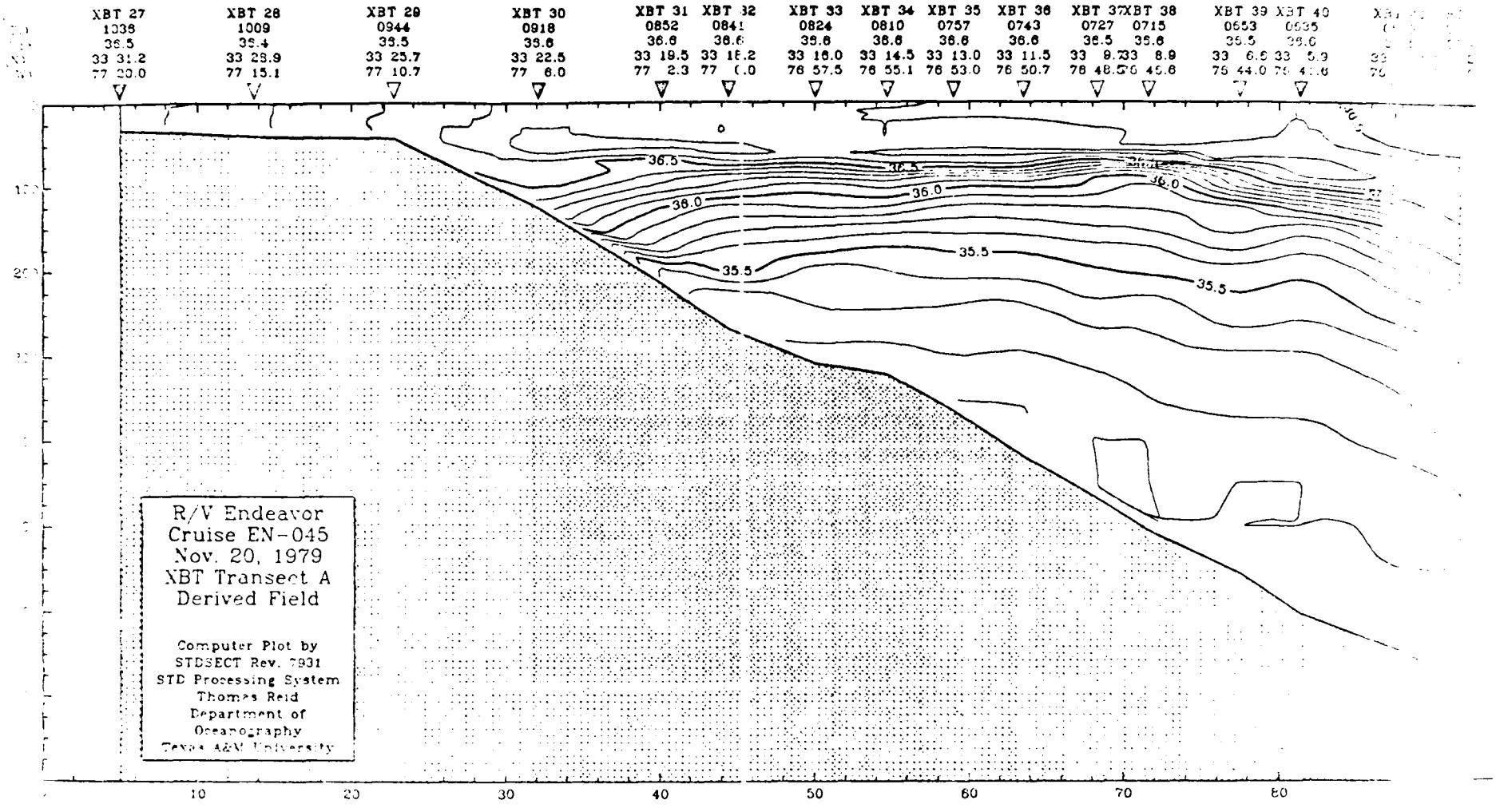
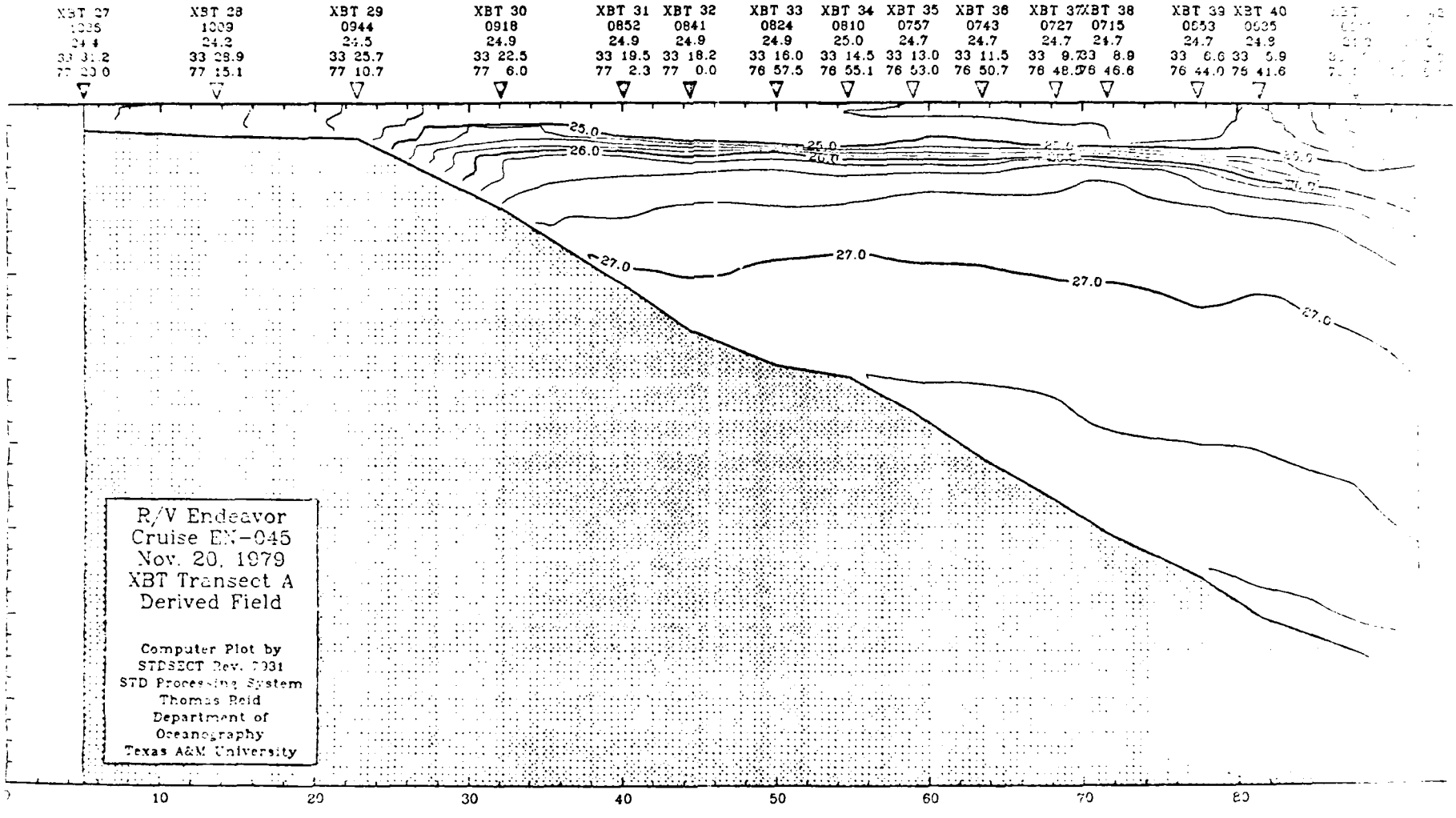


Figure 31. Section contours of temperature and derived salinity, sigma-t and N^2 fields for Transect A. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units, and 0.5×10^{-4} rad^2.s^{-2}, respectively. This figure is continued on the next 3 pages.



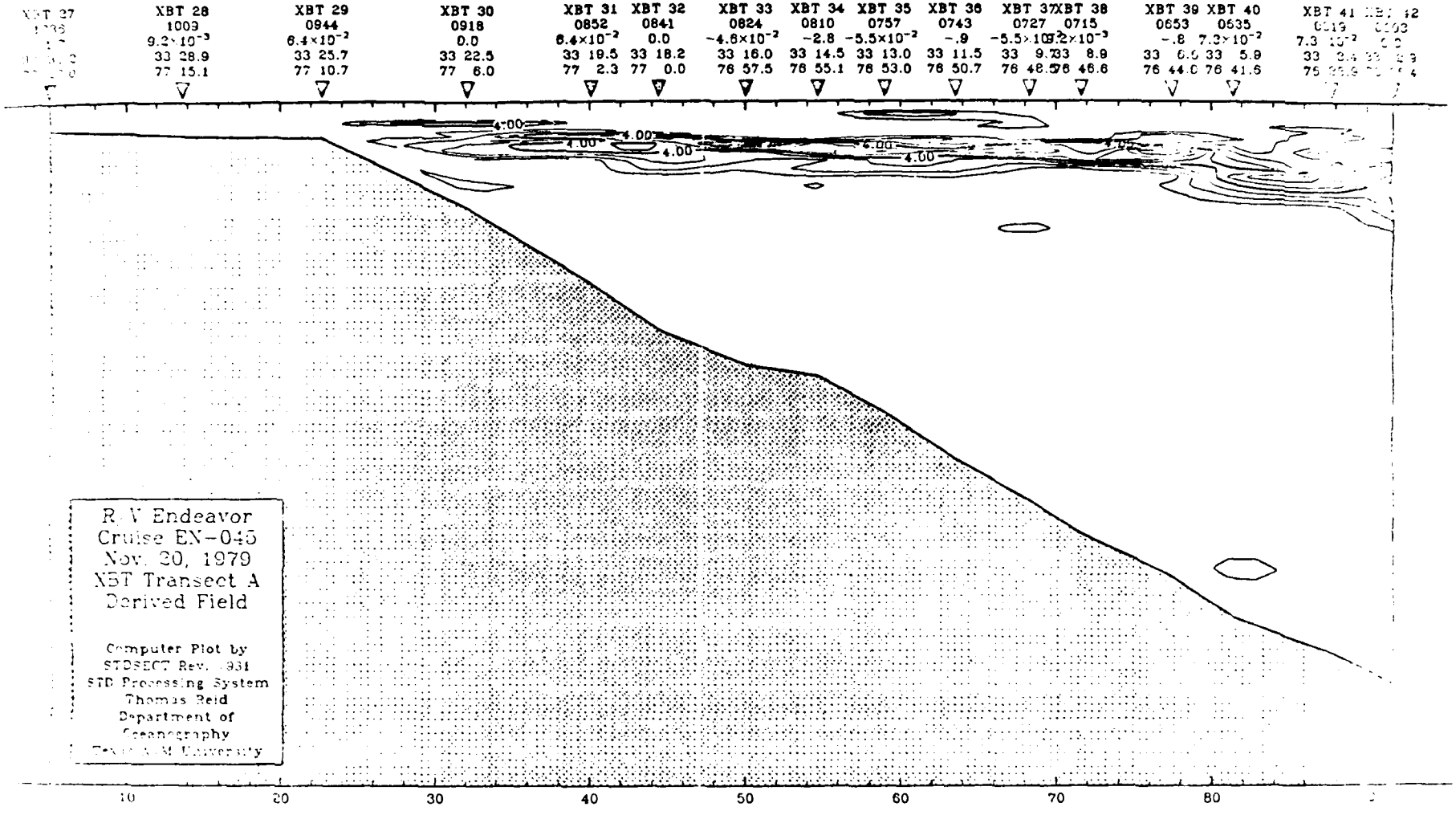
Distance Along Transect (Km)

Contours of Salinity (‰)



Distance Along Transect (Km)

Contours of σ_t (g/l)



Distance Along Transect (Km)

Contours of N^2 (10^4 rad^2/s^2)

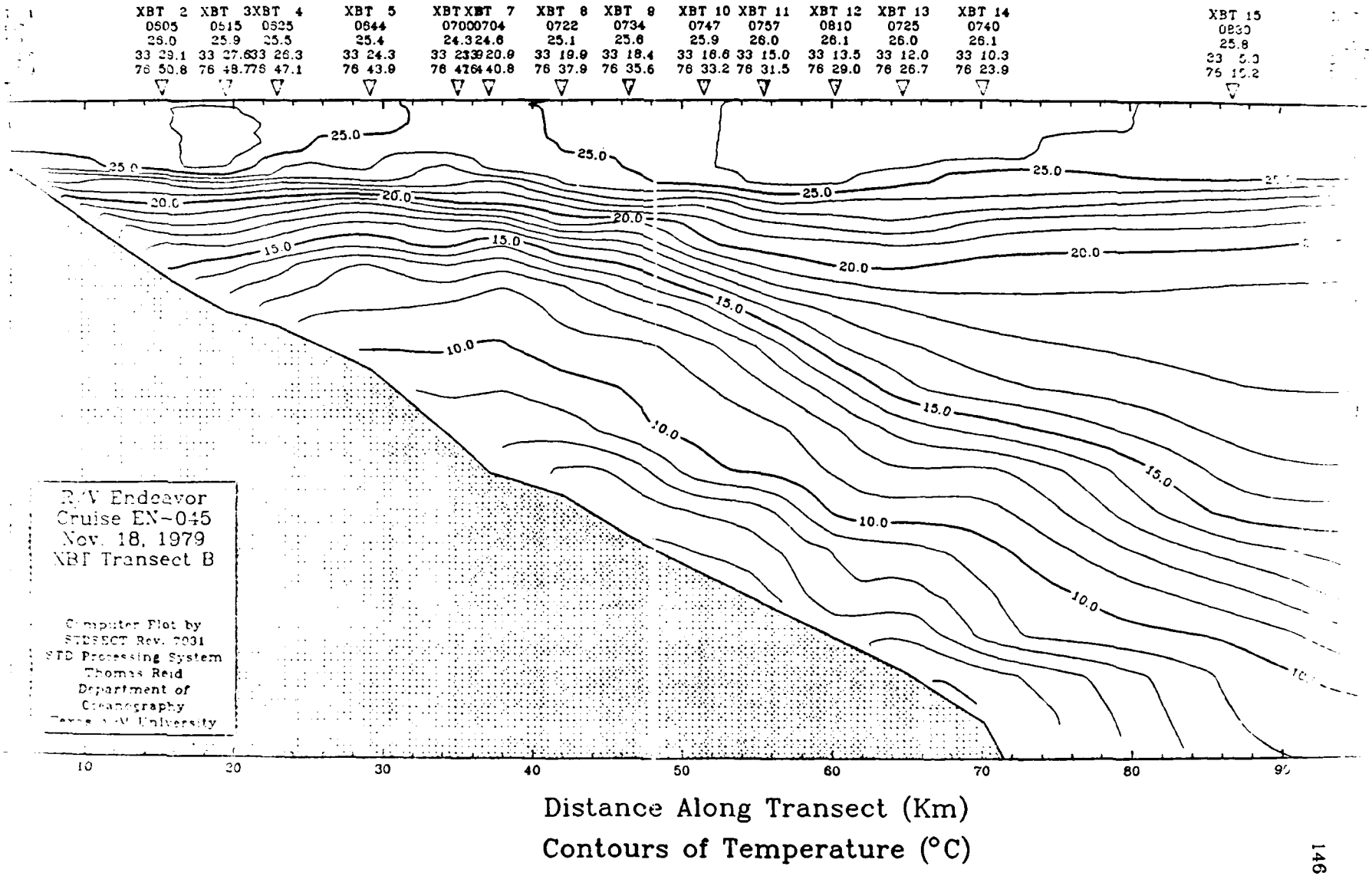
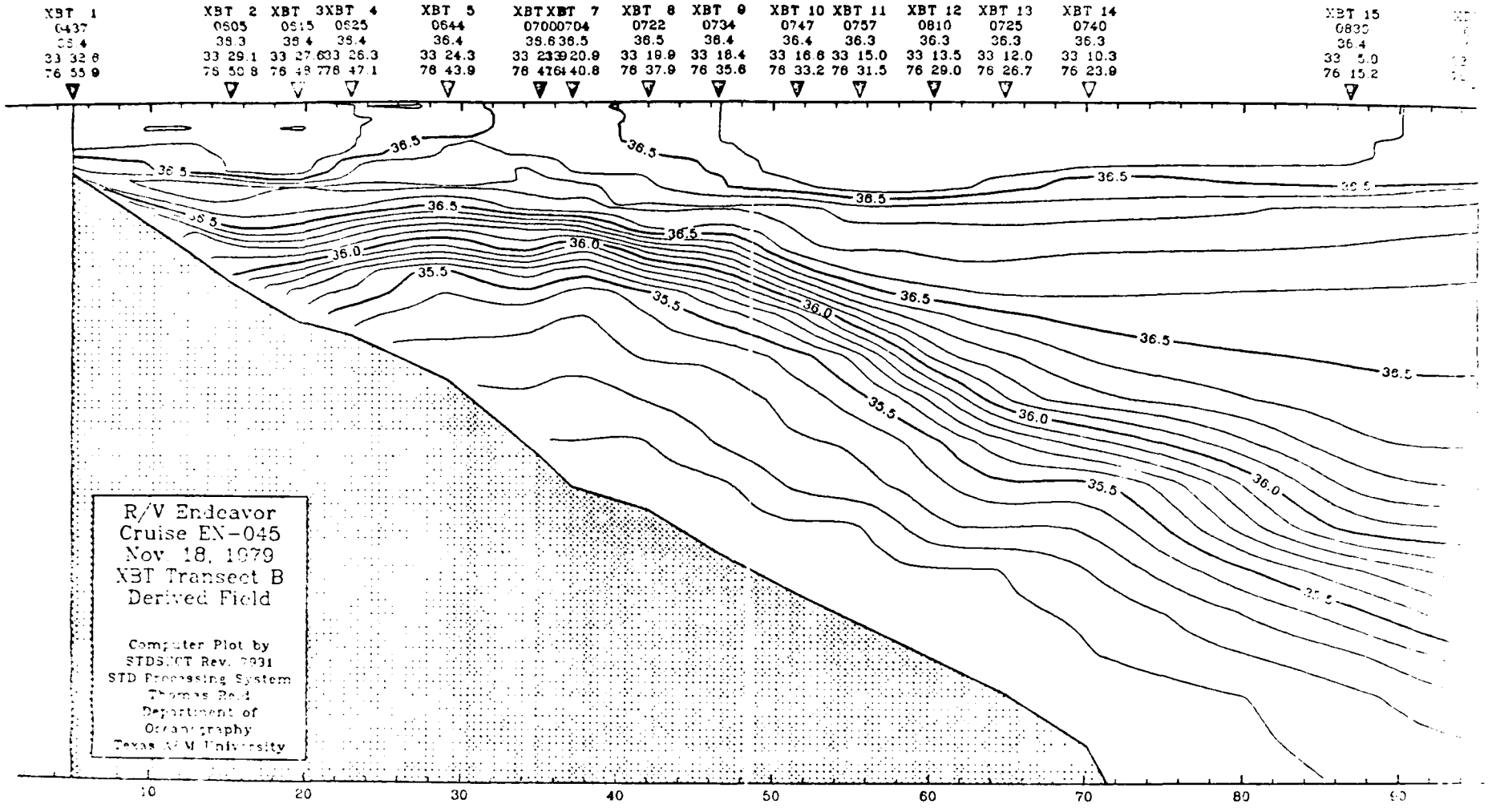
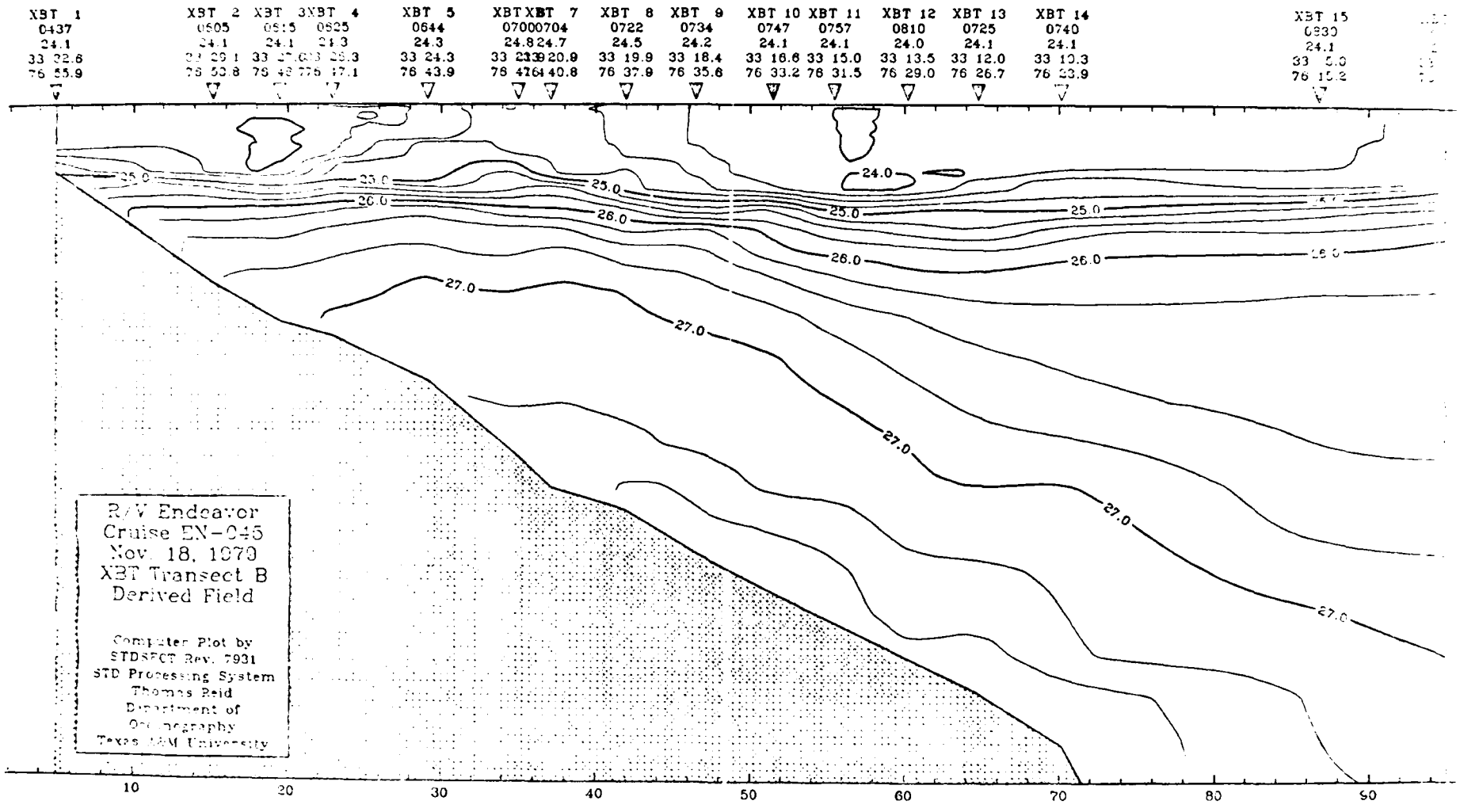


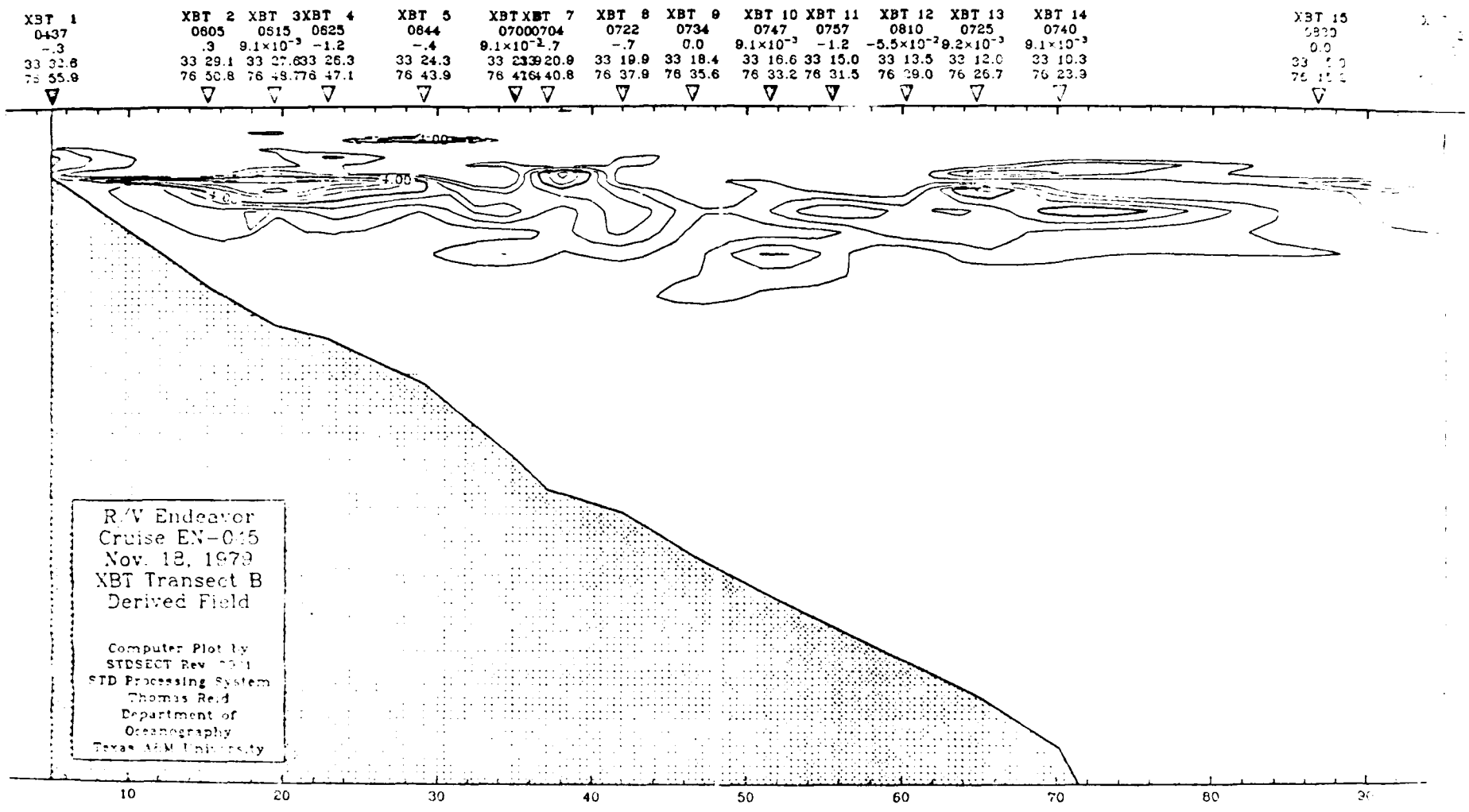
Figure 32. Section contours of temperature and derived salinity, sigma-t and N^2 fields for Transect B. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units, and 0.5×10^{-4} rad^2·s^{-2}, respectively. This figure is continued on the next 3 pages.



Distance Along Transect (Km)

Contours of Salinity (‰)


XBT 1
0437
24.1
33 32.6
76 55.9
XBT 2
0505
24.1
XBT 3
0515
24.1
XBT 4
0525
24.3
XBT 5
0644
24.3
33 24.3
76 43.9
XBT 6
07000704
24.8
XBT 7
24.7
20.9
40.8
XBT 8
0722
24.5
33 19.9
76 37.9
XBT 9
0734
24.2
33 18.4
76 35.6
XBT 10
0747
24.1
33 16.6
76 33.2
XBT 11
0757
24.1
33 15.0
76 31.5
XBT 12
0810
24.0
33 13.5
76 29.0
XBT 13
0725
24.1
33 12.0
76 26.7
XBT 14
0740
24.1
33 10.3
XBT 15
0830
24.1
33 5.0
76 15.2
24.0
25.0
26.0
27.0
R/V Endeavor
Cruise EN-045
Nov. 18, 1979
XBT Transect B
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
10
20
30
40
50
60
70
80
90
Distance Along Transect (Km)
Contours of σ_t (g/l)



Distance Along Transect (Km)

Contours of N^2 (10^4 rad^2/s^2)

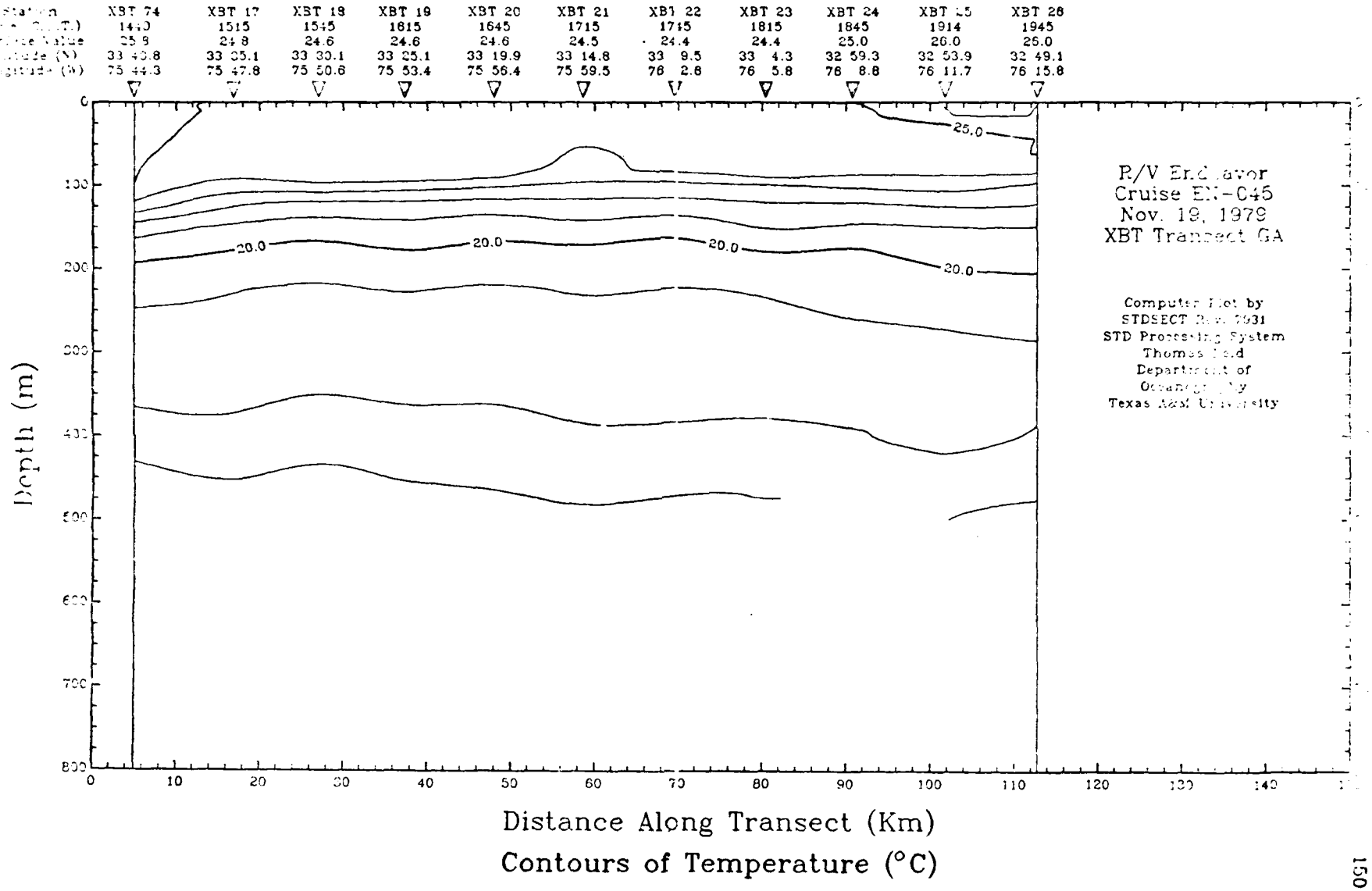
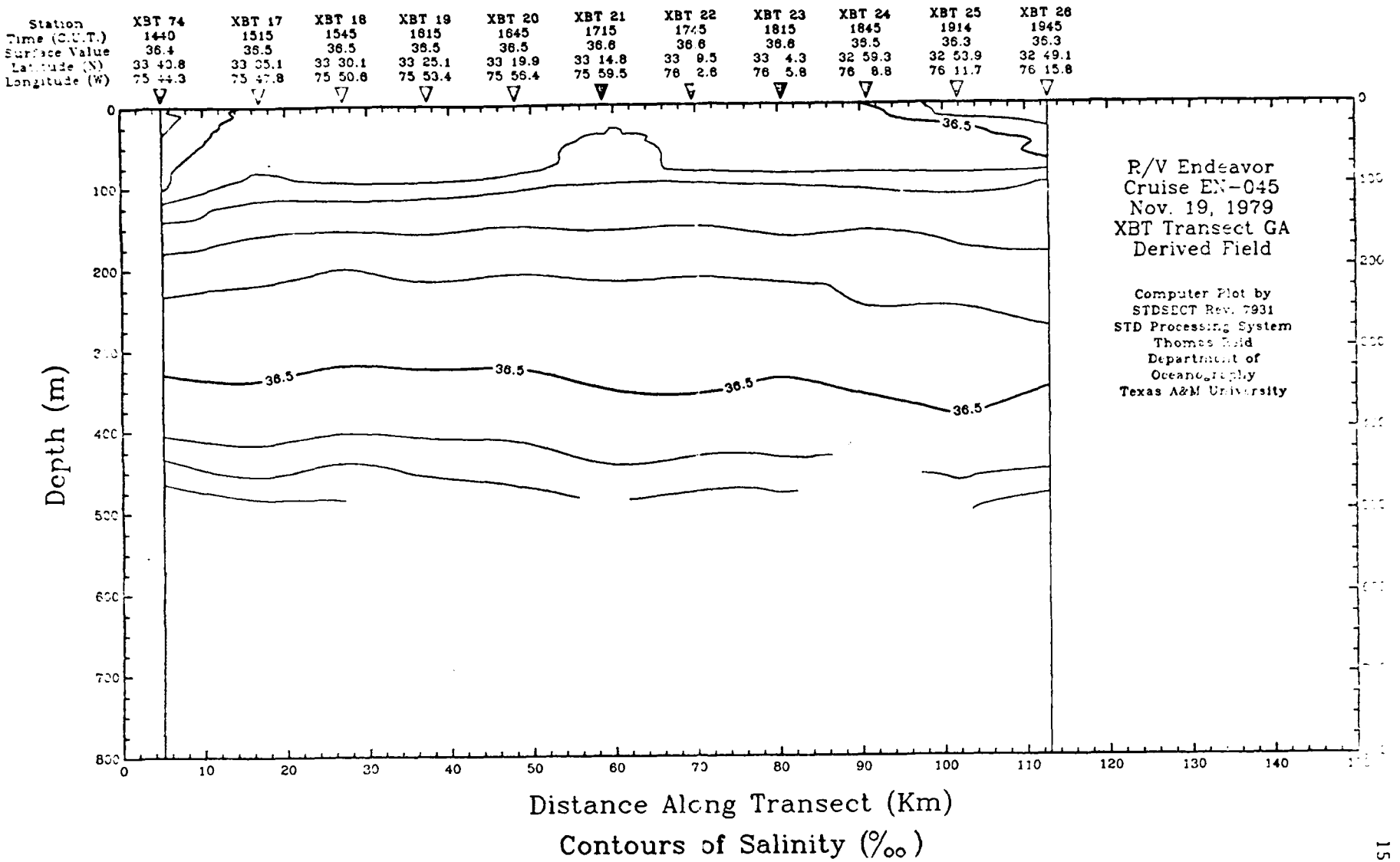
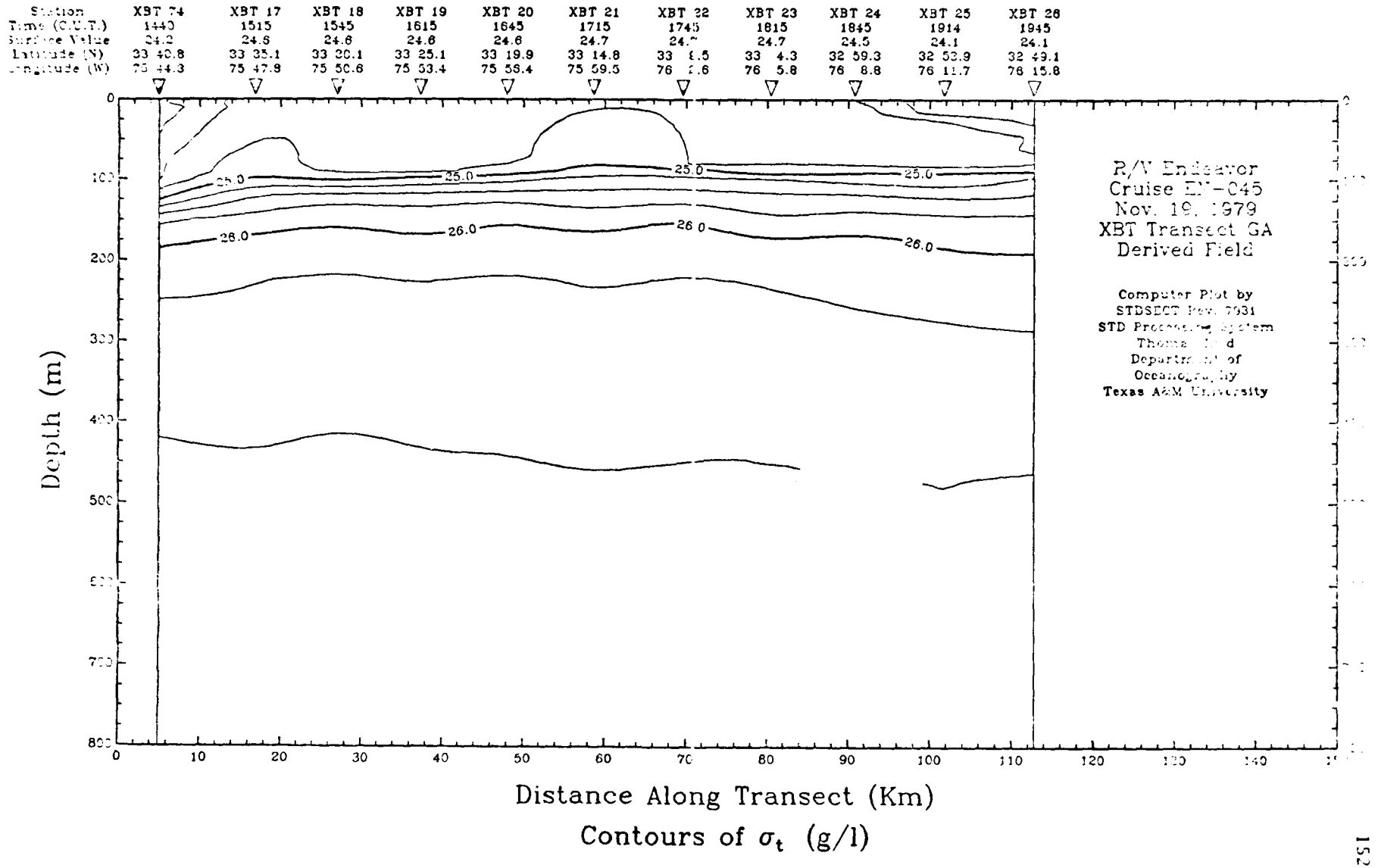
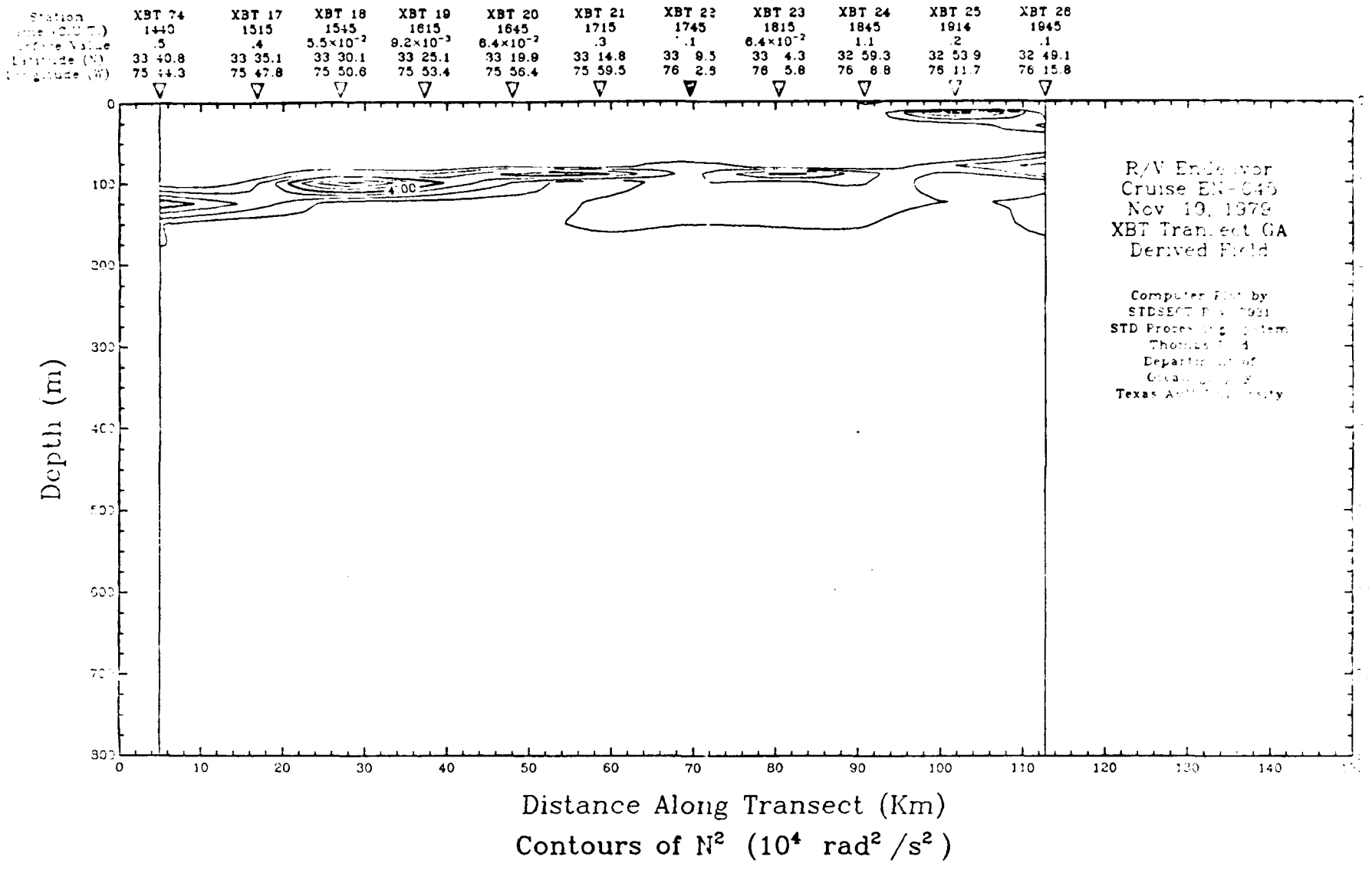


Figure 33. Section contours of temperature and derived salinity, sigma-t and N^2 fields for Transect GA. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units, and 0.5×10^{-4} $rad^2 \cdot s^{-2}$, respectively. This figure is continued on the next 3 pages.


Station
Time (G.M.T.)
Surface Value
Latitude (N)
Longitude (W)
XBT 74 1440 36.4 33 40.8 75 44.3
XBT 17 1515 36.5 33 35.1 75 47.8
XBT 18 1545 36.5 33 30.1 75 50.6
XBT 19 1615 36.5 33 25.1 75 53.4
XBT 20 1645 36.5 33 19.9 75 56.4
XBT 21 1715 36.6 33 14.8 75 59.5
XBT 22 1745 36.6 33 9.5 76 2.6
XBT 23 1815 36.6 33 4.3 76 5.8
XBT 24 1845 36.5 32 59.3 76 8.8
XBT 25 1914 36.3 32 53.9 76 11.7
XBT 26 1945 36.3 32 49.1 76 15.8
36.5
36.5
36.5
36.5
36.5
R/V Endeavor
Cruise EN-045
Nov. 19, 1979
XBT Transect GA
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Depth (m)
0
100
200
300
400
500
600
700
800
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
Distance Along Transect (Km)
Contours of Salinity (‰)


Station XBT 74 XBT 17 XBT 18 XBT 19 XBT 20 XBT 21 XBT 22 XBT 23 XBT 24 XBT 25 XBT 26
Time (G.M.T.) 1440 1515 1545 1615 1645 1715 1745 1815 1845 1914 1945
Surface Value 24.2 24.6 24.6 24.6 24.6 24.7 24.7 24.7 24.5 24.1 24.1
Latitude (N) 33 40.8 33 35.1 33 30.1 33 25.1 33 19.9 33 14.8 33 9.5 33 4.3 32 59.3 32 53.9 32 49.1
Longitude (W) 75 44.3 75 47.8 75 50.6 75 53.4 75 56.4 75 59.5 76 2.6 76 5.8 76 8.8 76 11.7 76 15.8
25.0
26.0
Depth (m)
0
100
200
300
400
500
600
700
800
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
R/V Endeavor
Cruise EN-045
Nov. 19, 1979
XBT Transect GA
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Distance Along Transect (Km)
Contours of σ_t (g/l)


Station
XBT 74
XBT 17
XBT 18
XBT 19
XBT 20
XBT 21
XBT 22
XBT 23
XBT 24
XBT 25
XBT 26
1440
1515
1545
1615
1645
1715
1745
1815
1845
1914
1945
.5
.4
5.5×10⁻²
9.2×10⁻³
6.4×10⁻²
.3
.1
6.4×10⁻²
1.1
.2
.1
33 40.8
33 35.1
33 30.1
33 25.1
33 19.9
33 14.8
33 9.5
33 4.3
32 59.3
32 53.9
32 49.1
75 44.3
75 47.8
75 50.6
75 53.4
75 56.4
75 59.5
76 2.8
76 5.8
76 8.8
76 11.7
76 15.8
4.00
R/V Endeavor
Cruise EN-045
Nov 19, 1979
XBT Transect GA
Derived Field
Computer Plot by
STDSECT
STD Processing System
Thomas
Department of
Texas A
Depth (m)
0
100
200
300
400
500
600
700
800
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
Distance Along Transect (Km)
Contours of N² (10⁴ rad²/s²)

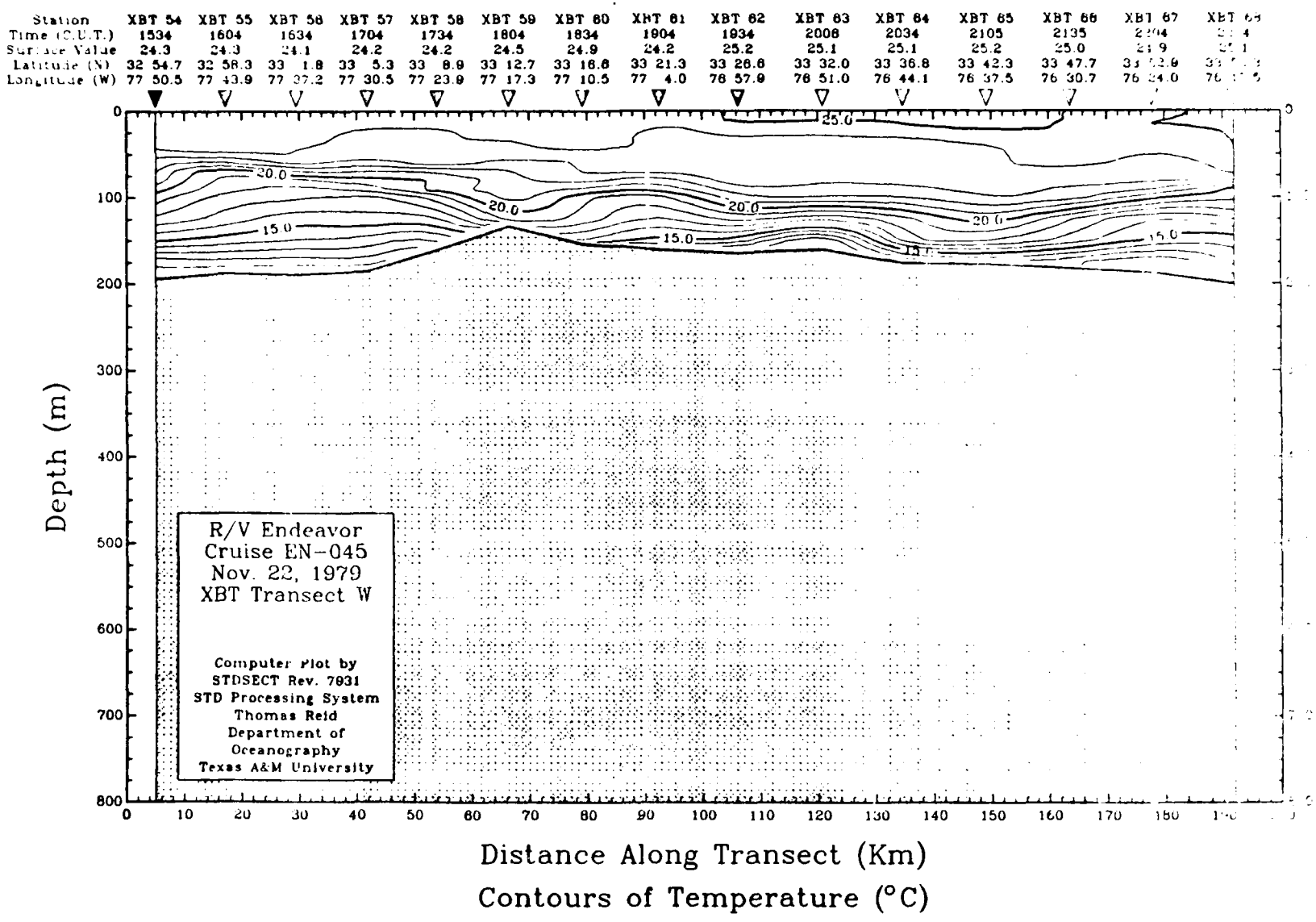
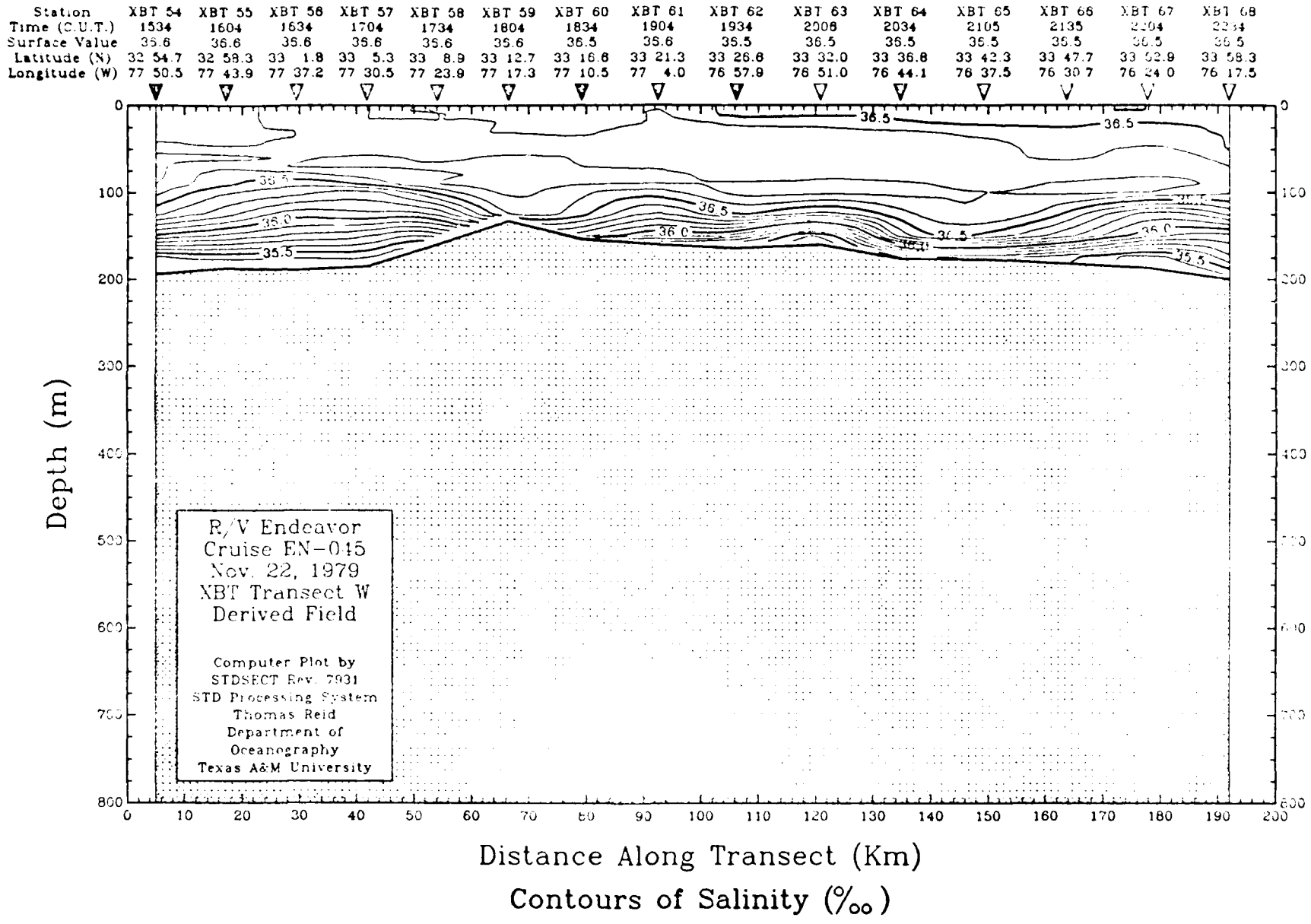
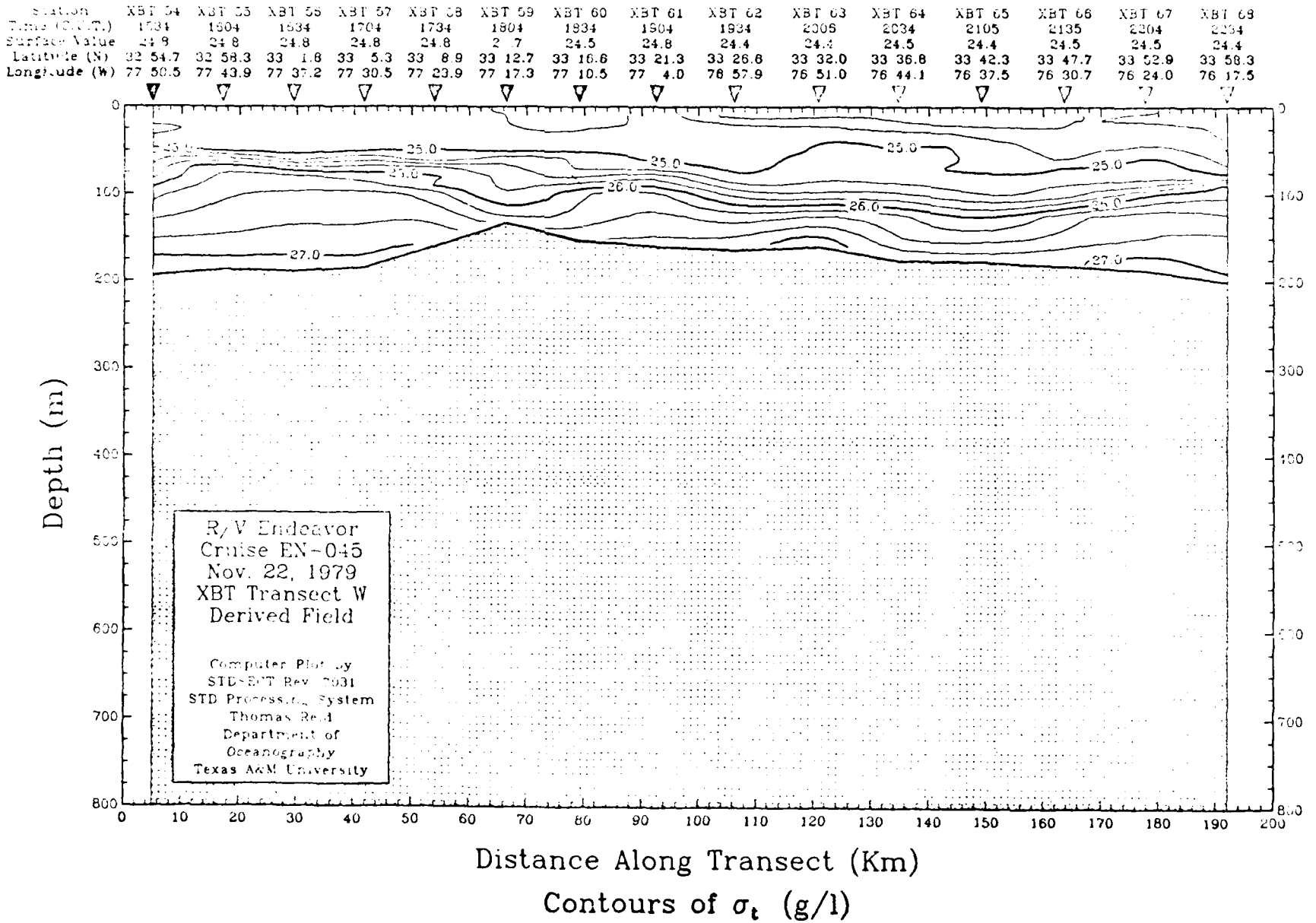
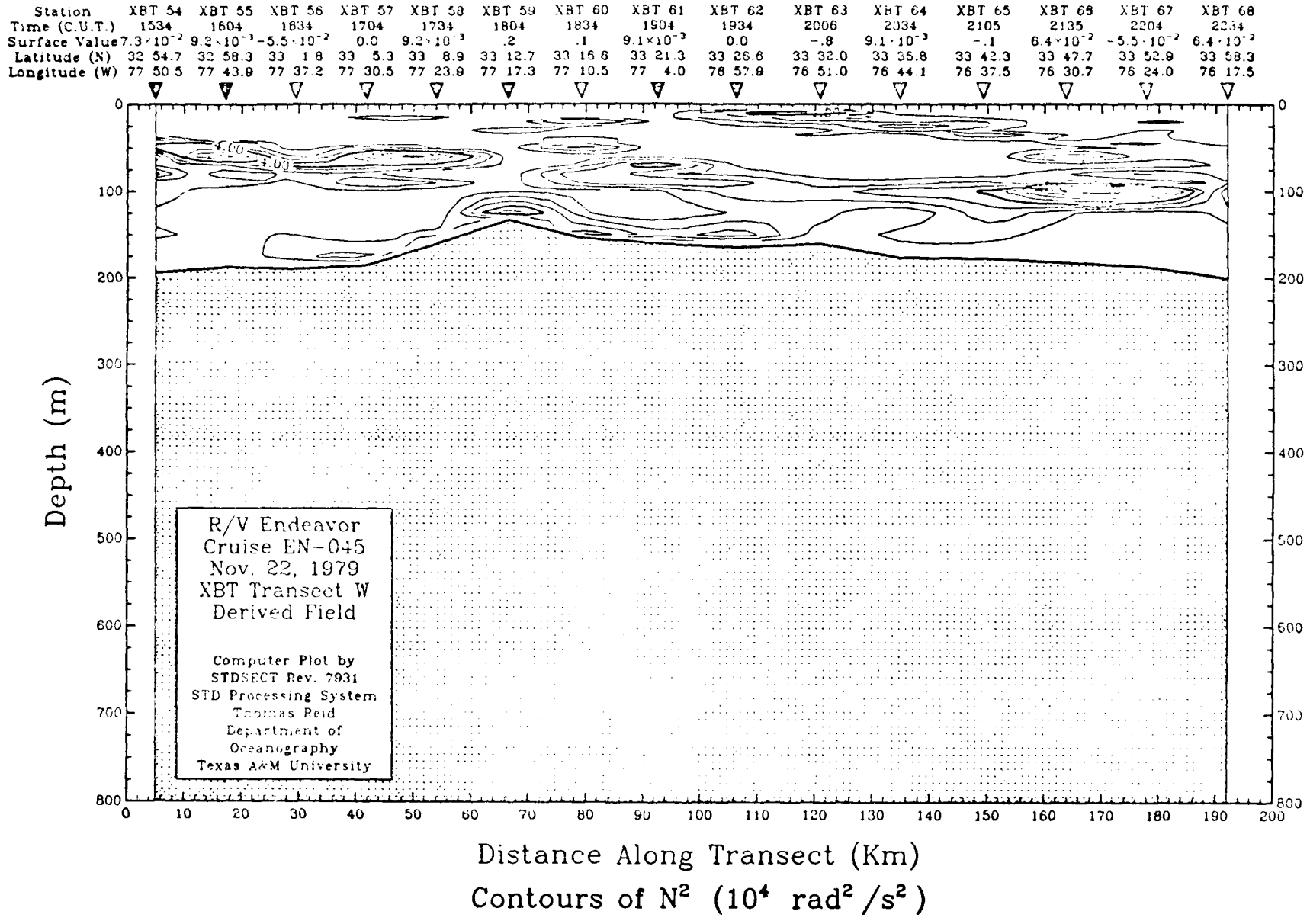


Figure 34. Section contours of temperature and derived salinity, sigma-t and N^2 fields for Transect W. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units, and 0.5×10^{-4} $rad^2 \cdot s^{-2}$, respectively. This figure is continued on the next 3 pages.


Station XBT 54 XBT 55 XBT 56 XBT 57 XBT 58 XBT 59 XBT 60 XBT 61 XBT 62 XBT 63 XBT 64 XBT 65 XBT 66 XBT 67 XBT 68
Time (G.M.T.) 1534 1604 1634 1704 1734 1804 1834 1904 1934 2008 2034 2105 2135 2204 2234
Surface Value 35.6 36.6 35.6 35.6 35.6 35.6 36.5 35.6 35.5 36.5 36.5 36.5 36.5 36.5 36.5
Latitude (N) 32 54.7 32 58.3 33 1.8 33 5.3 33 8.9 33 12.7 33 16.6 33 21.3 33 26.6 33 32.0 33 36.8 33 42.3 33 47.7 33 52.9 33 58.3
Longitude (W) 77 50.5 77 43.9 77 37.2 77 30.5 77 23.9 77 17.3 77 10.5 77 4.0 76 57.9 76 51.0 76 44.1 76 37.5 76 30.7 76 24.0 76 17.5
Depth (m)
0
100
200
300
400
500
600
700
800
36.5
36.0
35.5
R/V Endeavor
Cruise EN-045
Nov. 22, 1979
XBT Transect W
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200
Distance Along Transect (Km)
Contours of Salinity (‰)


Station XBT 54 XBT 55 XBT 56 XBT 57 XBT 58 XBT 59 XBT 60 XBT 61 XBT 62 XBT 63 XBT 64 XBT 65 XBT 66 XBT 67 XBT 68
Time (G.M.T.) 1734 1804 1834 1704 1734 1804 1834 1904 1934 2005 2034 2105 2135 2204 2234
Surface Value 24.9 24.8 24.8 24.8 24.8 2 .7 24.5 24.8 24.4 24.4 24.5 24.4 24.5 24.5 24.4
Latitude (N) 32 54.7 32 58.3 33 1.8 33 5.3 33 8.9 33 12.7 33 16.6 33 21.3 33 26.8 33 32.0 33 36.8 33 42.3 33 47.7 33 52.9 33 58.3
Longitude (W) 77 50.5 77 43.9 77 37.2 77 30.5 77 23.9 77 17.3 77 10.5 77 4.0 76 57.9 76 51.0 76 44.1 76 37.5 76 30.7 76 24.0 76 17.5
25.0
26.0
27.0
Depth (m)
0
100
200
300
400
500
600
700
800
R/V Endeavor
Cruise EN-045
Nov. 22, 1979
XBT Transect W
Derived Field
Computer Plotted by
STD-BT Rev 7031
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200
Distance Along Transect (Km)
Contours of σ_t (g/l)


Station XBT 54 XBT 55 XBT 56 XBT 57 XBT 58 XBT 59 XBT 60 XBT 61 XBT 62 XBT 63 XBT 64 XBT 65 XBT 66 XBT 67 XBT 68
Time (G.U.T.) 1534 1604 1634 1704 1734 1804 1834 1904 1934 2006 2034 2105 2135 2204 2234
Surface Value 7.3×10⁻² 9.2×10⁻³ -5.5×10⁻² 0.0 9.2×10⁻³ .2 .1 9.1×10⁻³ 0.0 -.8 9.1×10⁻³ -.1 6.4×10⁻² -5.5×10⁻² 6.4×10⁻²
Latitude (N) 32 54.7 32 58.3 33 1.8 33 5.3 33 8.9 33 12.7 33 16.6 33 21.3 33 26.6 33 32.0 33 35.8 33 42.3 33 47.7 33 52.9 33 58.3
Longitude (W) 77 50.5 77 43.8 77 37.2 77 30.5 77 23.8 77 17.3 77 10.5 77 4.0 76 57.8 76 51.0 76 44.1 76 37.5 76 30.7 76 24.0 76 17.5
Depth (m)
0
100
200
300
400
500
600
700
800
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200
Distance Along Transect (Km)
Contours of N² (10⁴ rad²/s²)
R/V Endeavor
Cruise EN-045
Nov. 22, 1979
XBT Transect W
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University

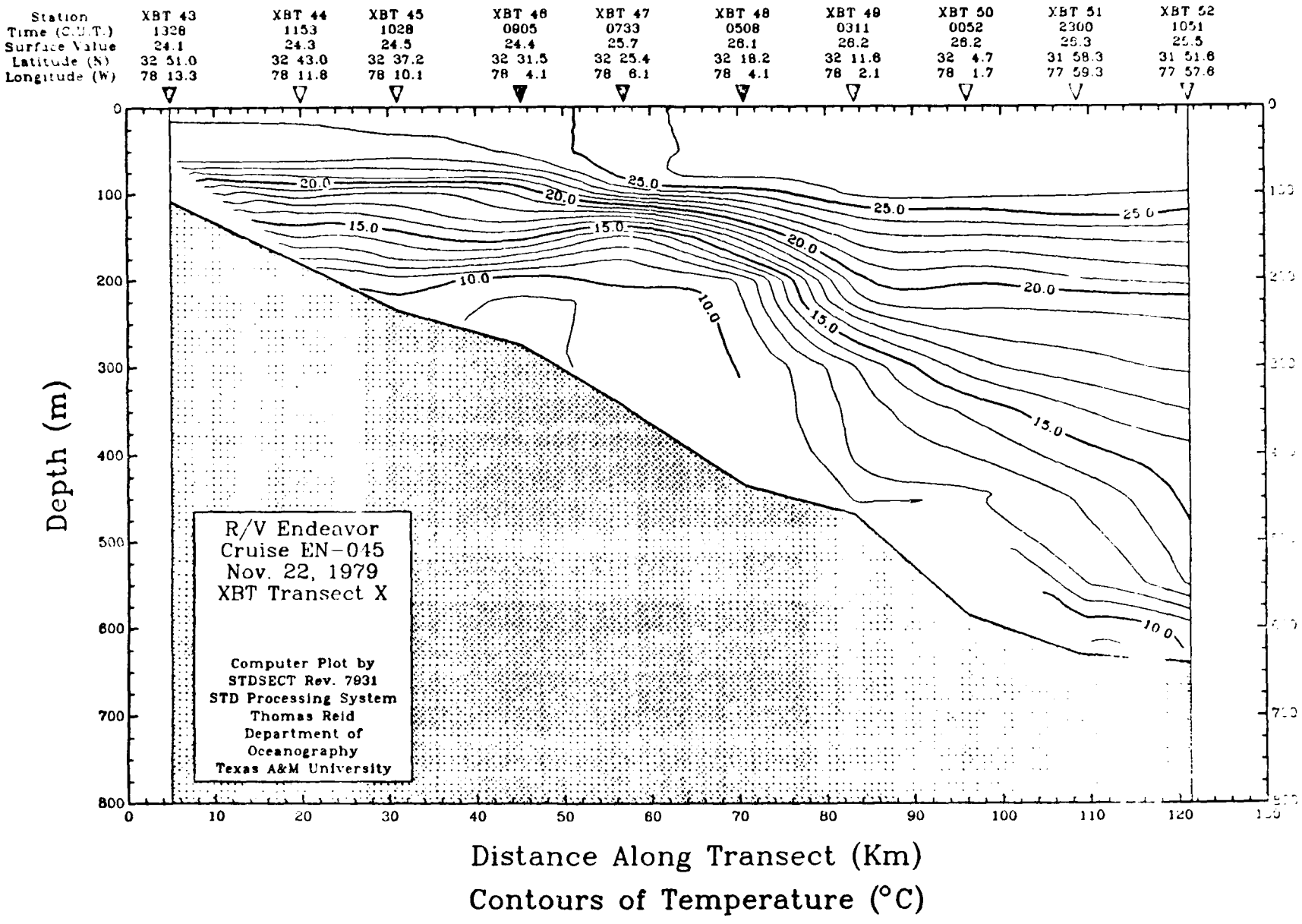
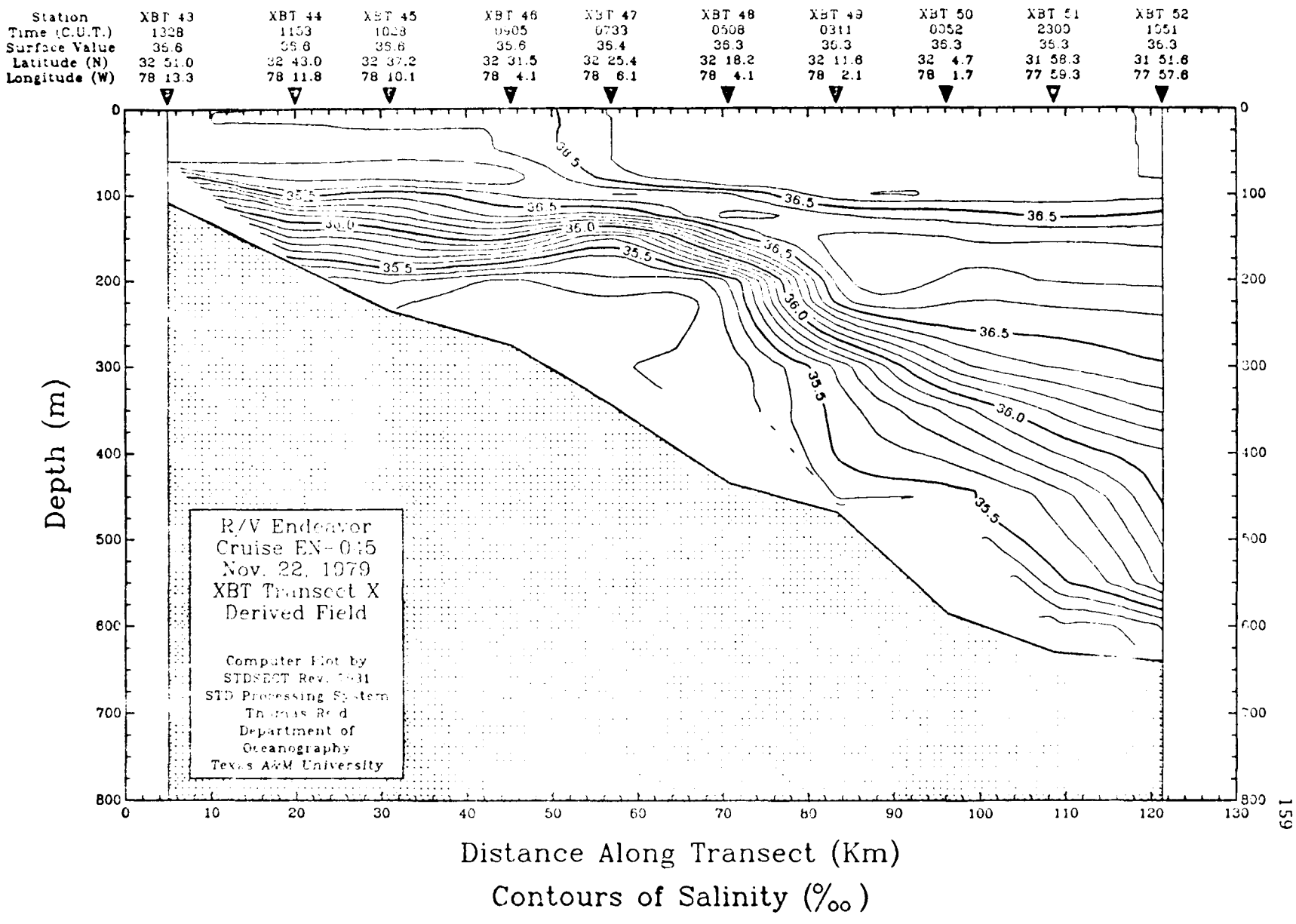
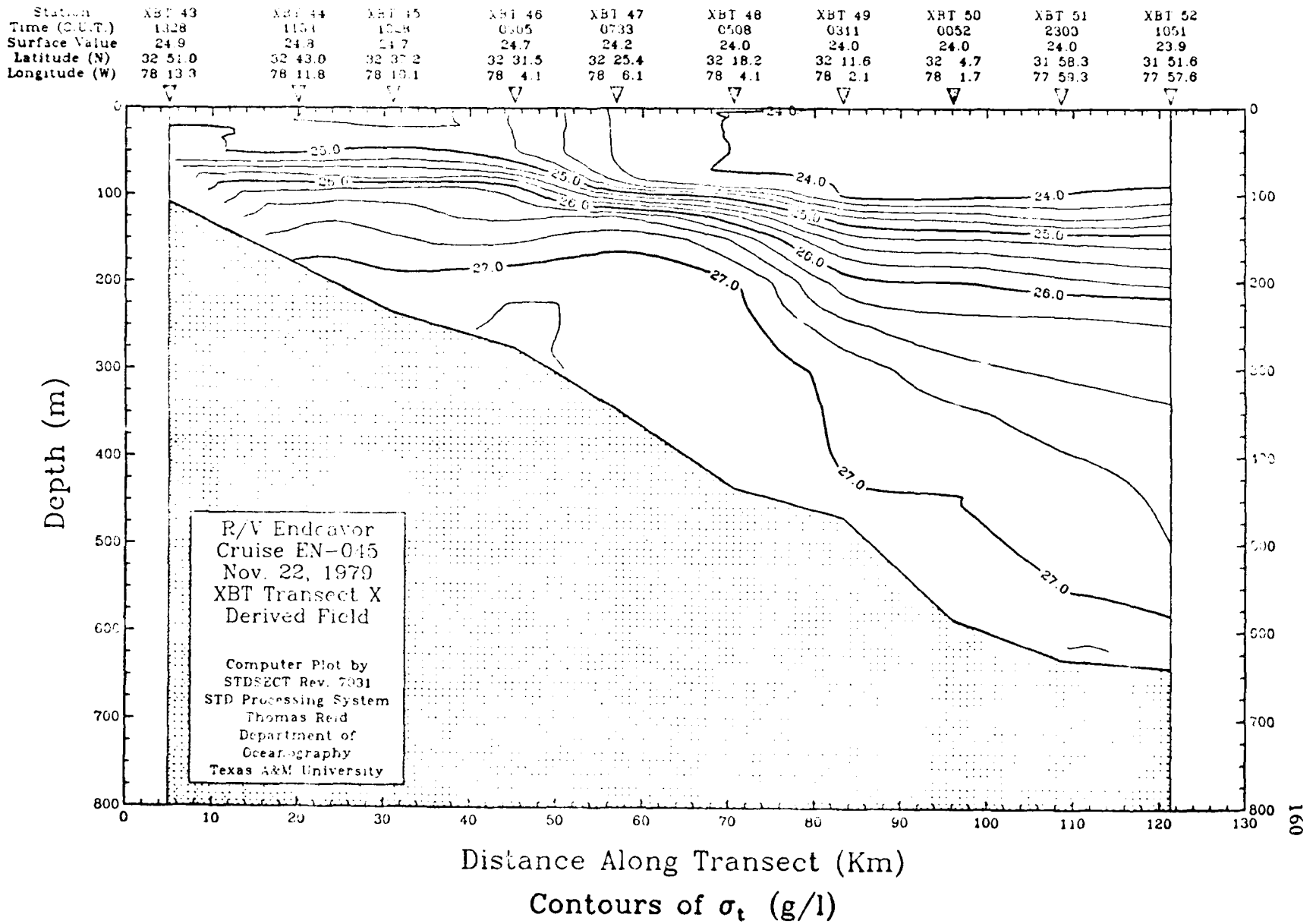
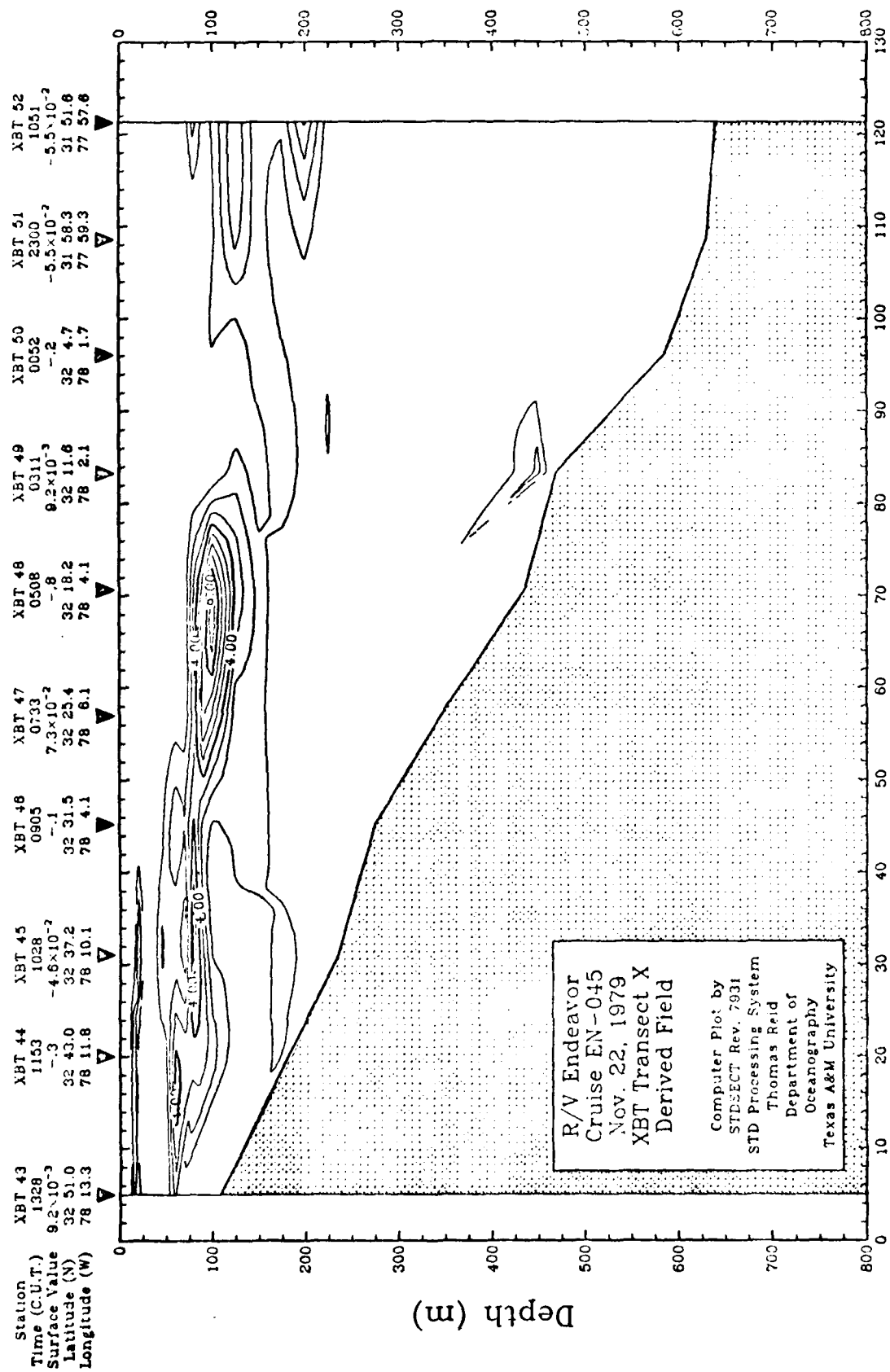


Figure 35. Section contours of temperature and derived salinity, sigma-t and N^2 fields for Transect X. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units, and 0.5×10^{-4} rad^2 s^{-2}, respectively. This figure is continued on the next 3 pages.


Station XBT 43 XBT 44 XBT 45 XBT 46 XBT 47 XBT 48 XBT 49 XBT 50 XBT 51 XBT 52
Time (G.M.T.) 1328 1153 1028 0905 0733 0508 0311 0052 2300 1051
Surface Value 36.6 36.6 36.6 36.6 36.4 36.3 36.3 36.3 36.3 36.3
Latitude (N) 32 51.0 32 43.0 32 37.2 32 31.5 32 25.4 32 18.2 32 11.6 32 4.7 31 58.3 31 51.6
Longitude (W) 78 13.3 78 11.8 78 10.1 78 4.1 78 6.1 78 4.1 78 2.1 78 1.7 77 59.3 77 57.6
Depth (m)
0
100
200
300
400
500
600
700
800
36.5
36.0
35.5
R/V Endeavor
Cruise EN-015
Nov. 22, 1979
XBT Transect X
Derived Field
Computer Plot by
STDSECT Rev. 1981
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0 10 20 30 40 50 60 70 80 90 100 110 120 130
Distance Along Transect (Km)
Contours of Salinity (‰)


Station XBT 43 XBT 44 XBT 45 XBT 46 XBT 47 XBT 48 XBT 49 XBT 50 XBT 51 XBT 52
Time (G.M.T.) 1328 1154 1058 0505 0733 0508 0311 0052 2300 1051
Surface Value 24.9 24.8 24.7 24.7 24.2 24.0 24.0 24.0 24.0 23.9
Latitude (N) 32 51.0 32 43.0 32 35.2 32 31.5 32 25.4 32 18.2 32 11.6 32 4.7 31 58.3 31 51.6
Longitude (W) 78 13.3 78 11.8 78 10.1 78 4.1 78 6.1 78 4.1 78 2.1 78 1.7 77 59.3 77 57.6
Depth (m)
0
100
200
300
400
500
600
700
800
24.0
25.0
26.0
27.0
R/V Endeavor
Cruise EN-045
Nov. 22, 1979
XBT Transect X
Derived Field
Computer Plot by
STDSECT Rev. 7031
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
0 10 20 30 40 50 60 70 80 90 100 110 120 130
Distance Along Transect (Km)
Contours of σ_t (g/l)
160


Station
Time (C.U.T.)
Surface Value
Latitude (N)
Longitude (W)
XBT 43 1328 9.2×10⁻³ 32 51.0 78 13.3
XBT 44 1153 -.3 32 43.0 78 11.8
XBT 45 1028 -4.6×10⁻² 32 37.2 78 10.1
XBT 46 0905 -.1 32 31.5 78 4.1
XBT 47 0733 7.3×10⁻² 32 25.4 78 6.1
XBT 48 0508 -.8 32 18.2 78 4.1
XBT 49 0311 9.2×10⁻³ 32 11.6 78 2.1
XBT 50 0052 -.2 32 4.7 78 1.7
XBT 51 2300 -5.5×10⁻² 31 58.3 77 59.3
XBT 52 1051 -5.5×10⁻² 31 51.8 77 57.8
4.00
R/V Endeavor
Cruise EN-045
Nov. 22, 1979
XBT Transect X
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Depth (m)
Distance Along Transect (Km)
Contours of N² (10⁴ rad²/s²)

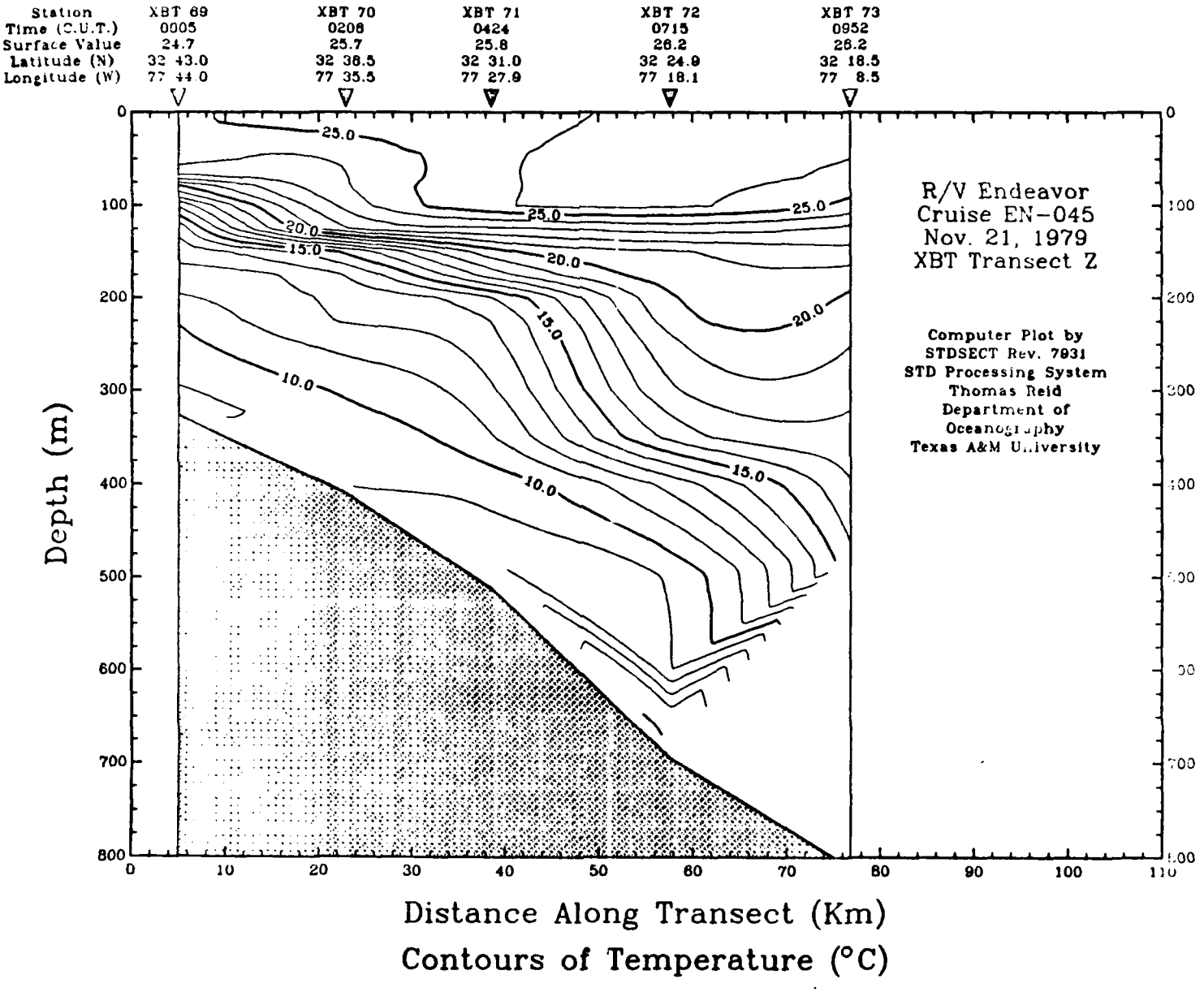
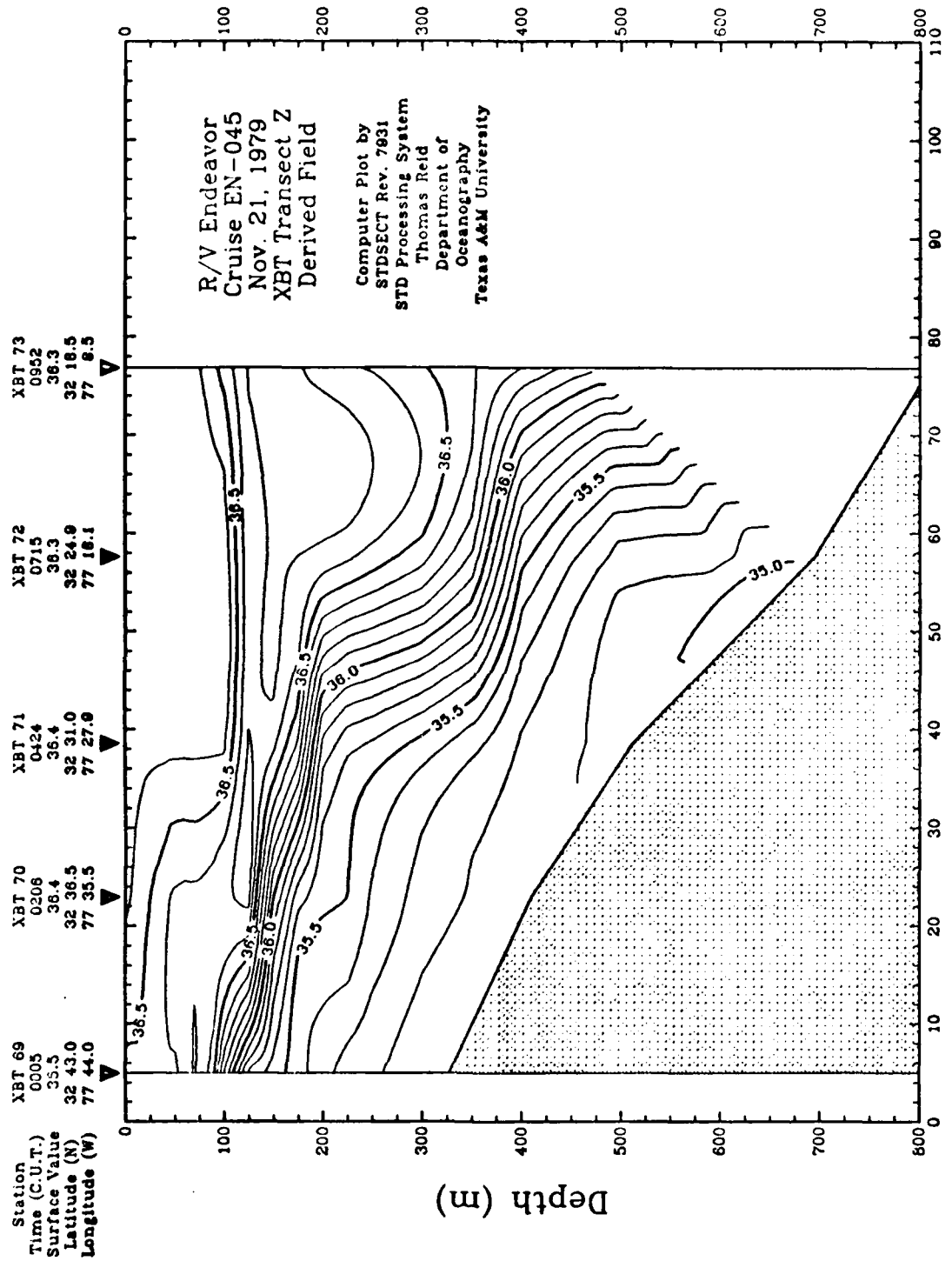
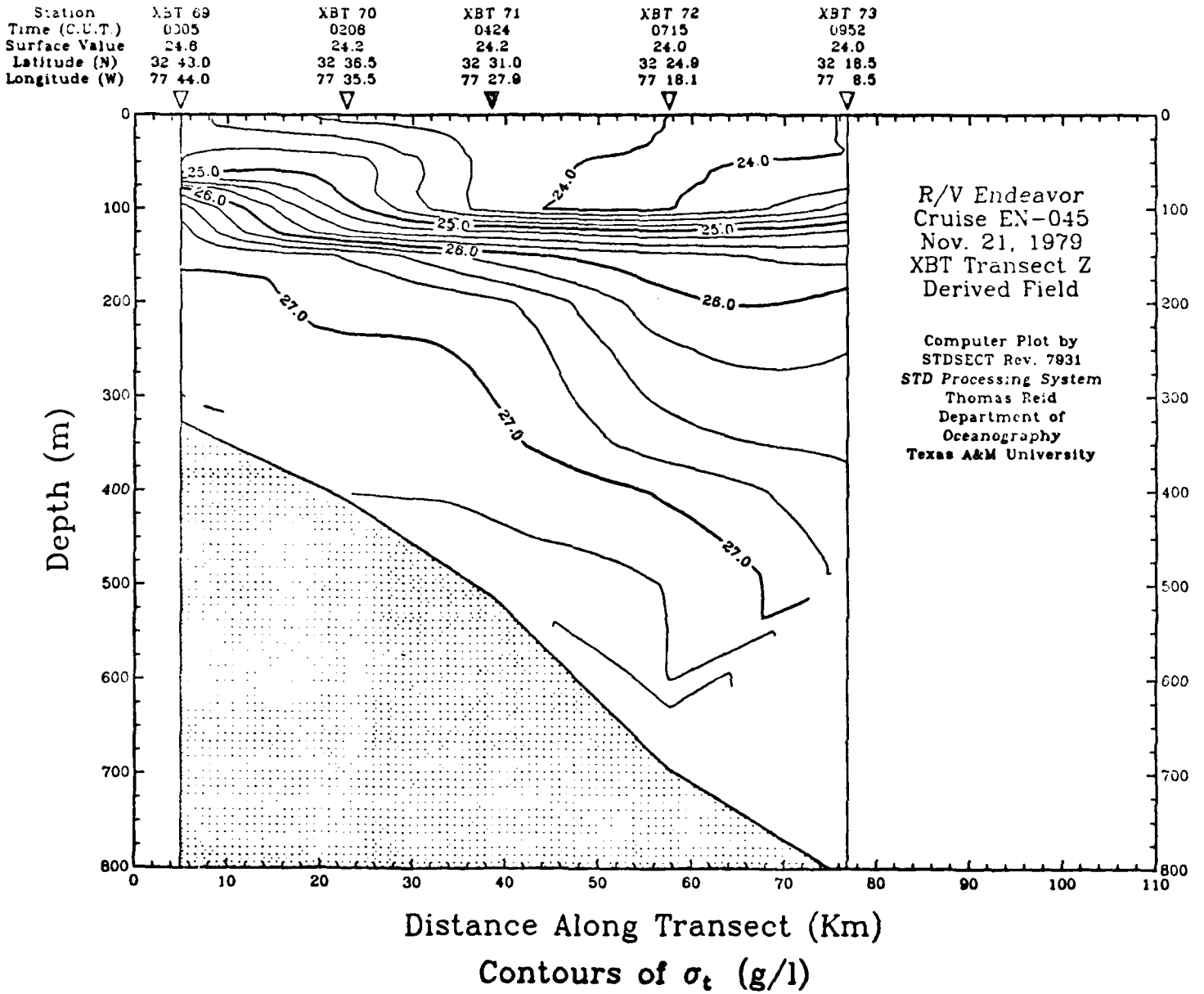
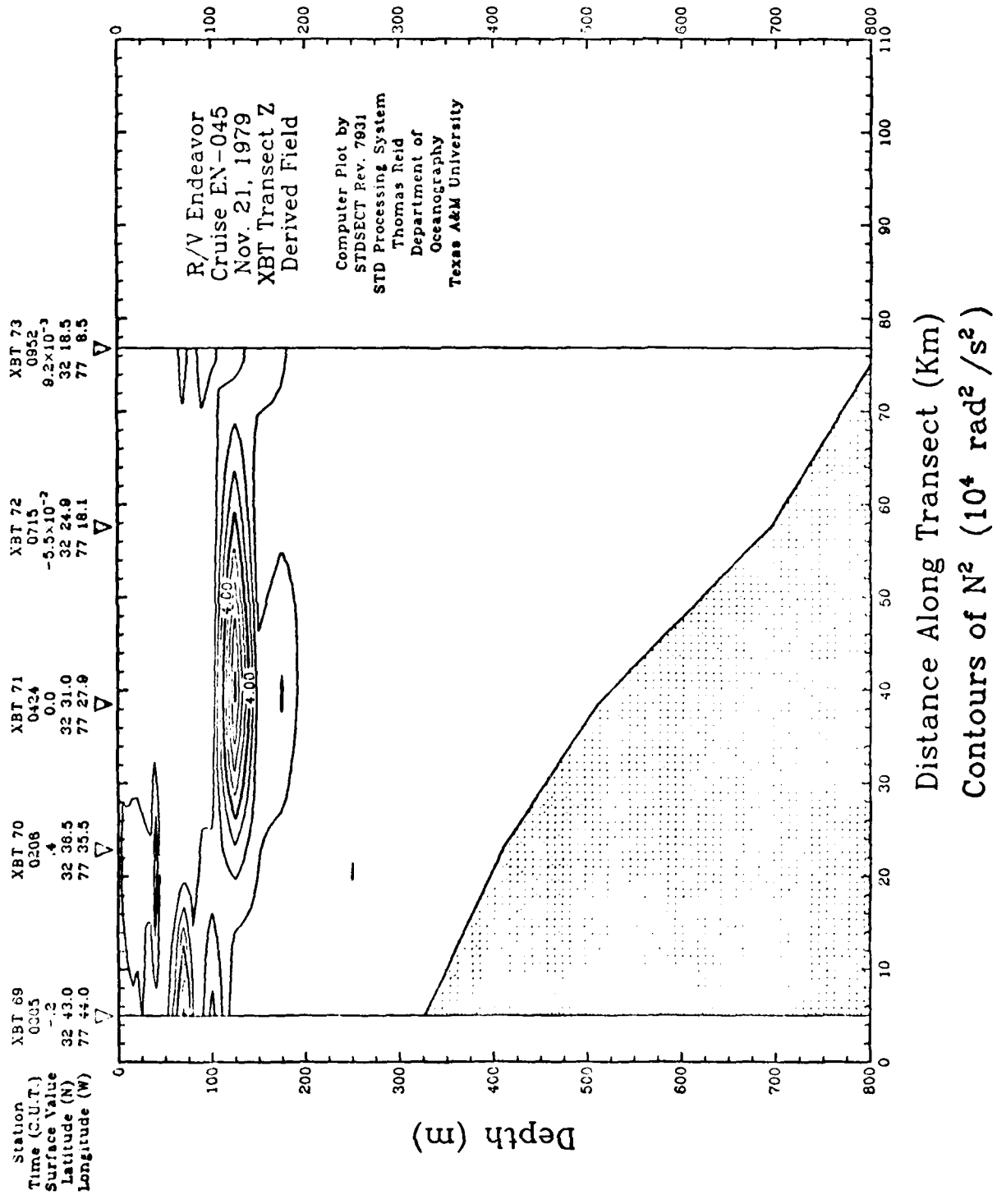


Figure 36. Section contours of temperature and derived salinity, sigma-t and N^2 fields for Transect Z. Contour intervals are 1 C°, 0.1‰, 0.25 σ_t units, and 0.5×10^{-4} rad^2·s^{-2}, respectively. This figure is continued on the next 3 pages.


R/V Endeavor
Cruise EN-045
Nov. 21, 1979
XBT Transect Z
Derived Field
Computer Plot by
STDSECT Rev. 7831
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Station
Time (C.U.T.)
Surface Value
Latitude (N)
Longitude (W)
XBT 69
0005
35.5
32 43.0
77 44.0
XBT 70
0206
36.4
32 36.5
77 35.5
XBT 71
0424
36.4
32 31.0
77 27.0
XBT 72
0715
36.3
32 24.0
77 16.1
XBT 73
0952
36.3
32 18.5
77 8.5
36.5
36.0
35.5
35.0
Depth (m)
Distance Along Transect (Km)
Contours of Salinity (‰)


Station XBT 69 XBT 70 XBT 71 XBT 72 XBT 73
Time (G.M.T.) 0305 0208 0424 0715 0952
Surface Value 24.6 24.2 24.2 24.0 24.0
Latitude (N) 32 43.0 32 36.5 32 31.0 32 24.9 32 18.5
Longitude (W) 77 44.0 77 35.5 77 27.9 77 18.1 77 8.5
24.0
25.0
26.0
27.0
R/V Endeavor
Cruise EN-045
Nov. 21, 1979
XBT Transect Z
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Depth (m)
0 100 200 300 400 500 600 700 800
0 10 20 30 40 50 60 70 80 90 100 110
Distance Along Transect (Km)
Contours of σ_t (g/l)


R/V Endeavor
Cruise EN-045
Nov. 21, 1979
XBT Transect Z
Derived Field
Computer Plot by
STDSECT Rev. 7931
STD Processing System
Thomas Reid
Department of
Oceanography
Texas A&M University
Station
Time (G.M.T.)
Surface Value
Latitude (N)
Longitude (W)
XBT 69
0005
-.2
32 43.0
77 44.0
XBT 70
0206
.4
32 36.5
77 35.5
XBT 71
0424
0.0
32 31.0
77 27.9
XBT 72
0715
-5.5×10⁻²
32 24.0
77 18.1
XBT 73
0952
8.2×10⁻³
32 18.5
77 8.5
4.00
4.00
Depth (m)
Distance Along Transect (Km)
Contours of N² (10⁴ rad²/s²)

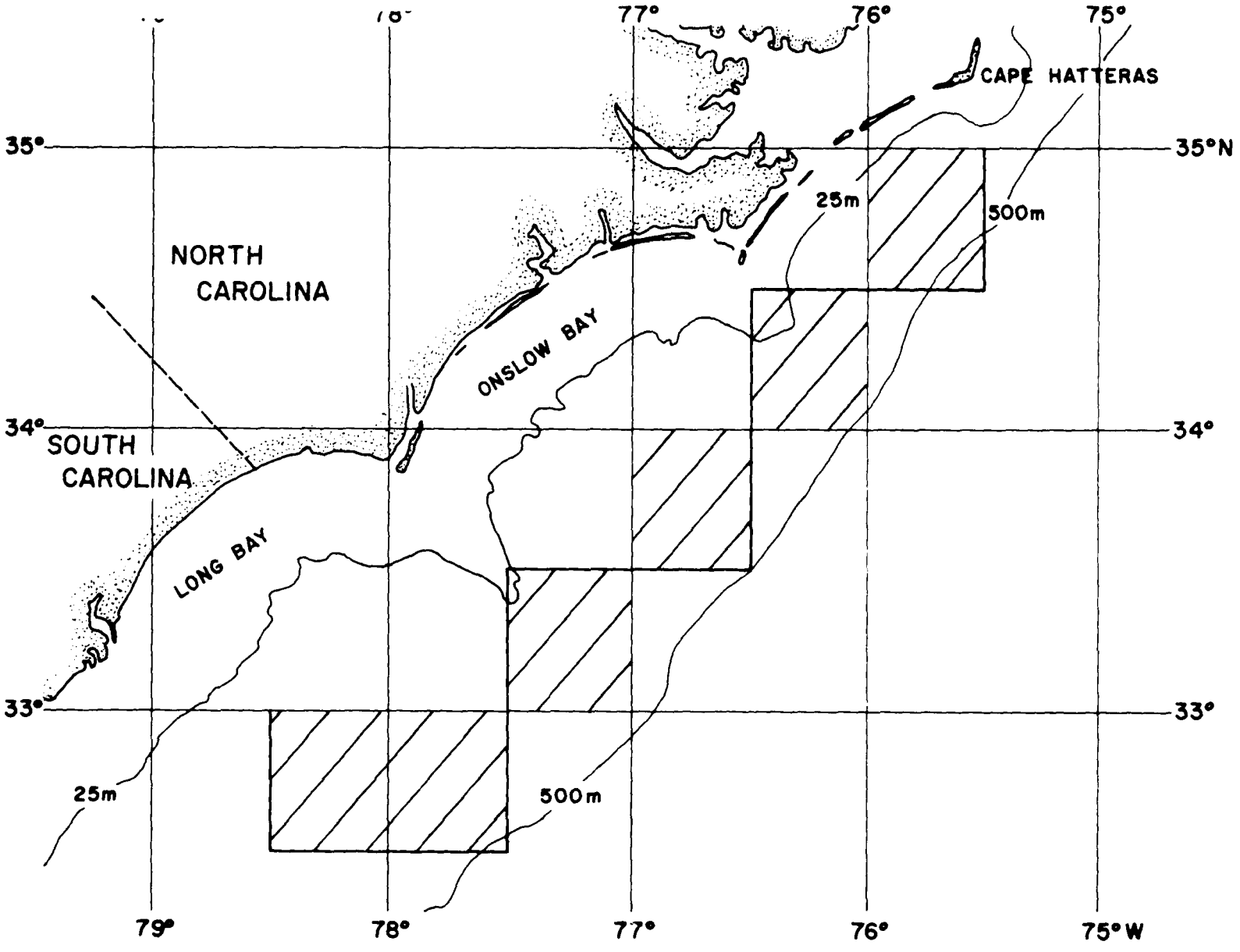


Figure 37. Historical temperature and salinity data collected in the hatched half-degree squares were obtained from the NODC files and used to compute seasonal (summer and winter) T-S correlations for comparison with T-S correlations obtained from this study.

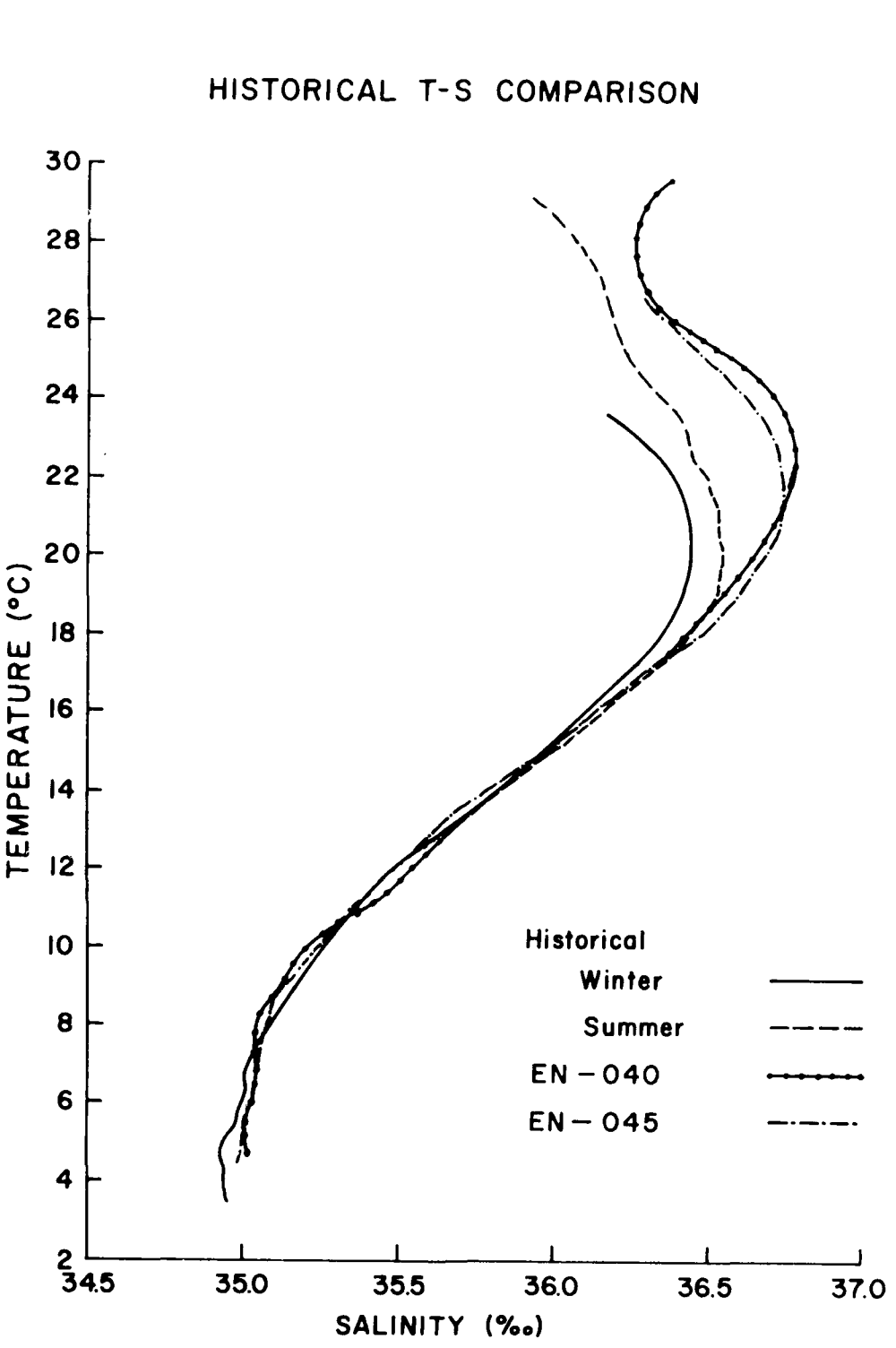


Figure 38. Comparison of NODC historical T-S correlation with those from cruises EN-040 and EN-045. The EN-040 and EN-045 correlations are the same as those shown in Figure 9 and 28, respectively.

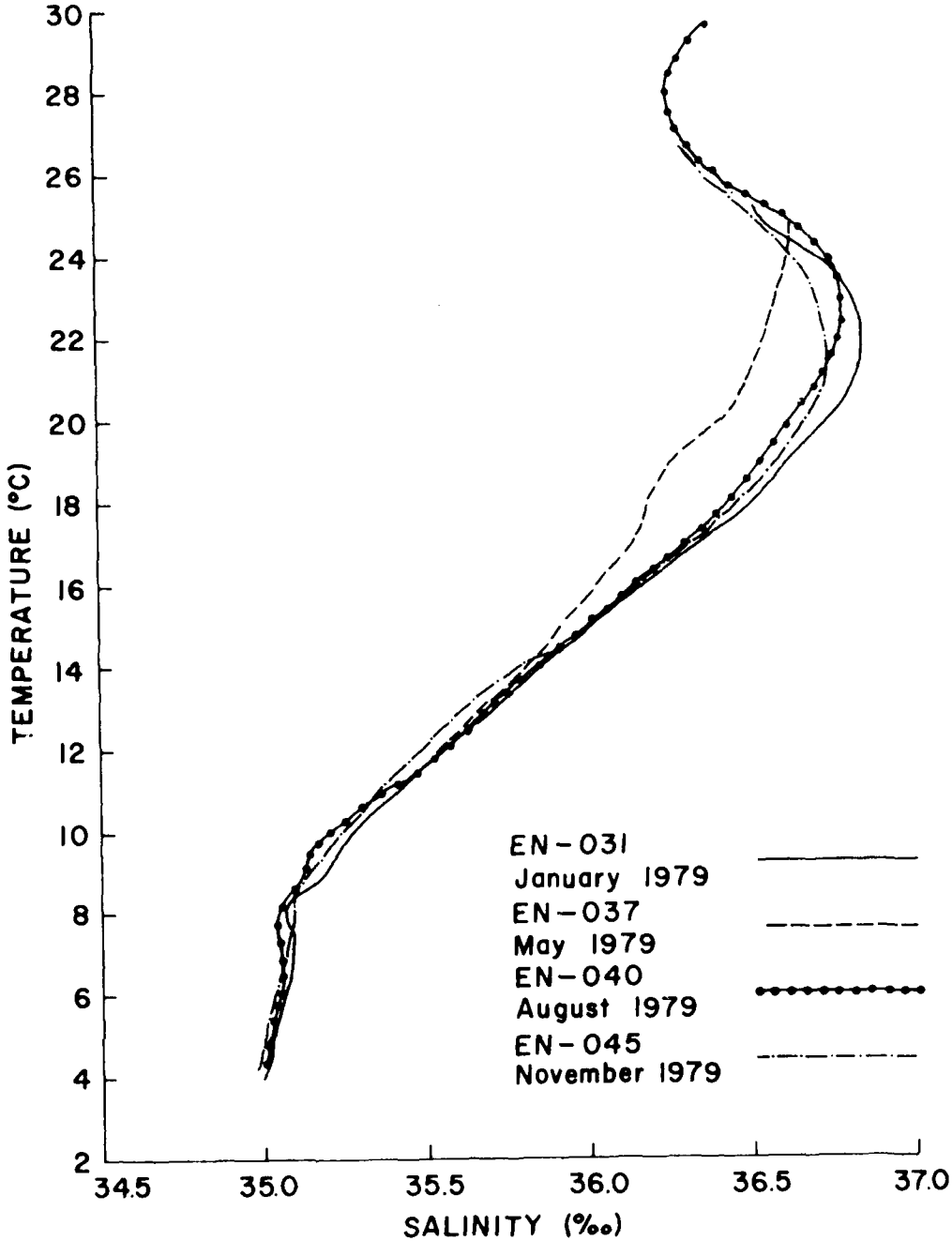


Figure 39. Comparison of the T-S correlations obtained during the four cruises which comprised the two field phases of this project. The data from cruises EN-031 and EN-037 are documented in Brooks *et al.*, 1980.

Acknowledgments

The Gulf Stream Meanders Experiment was supported by the National Science Foundation grants OCE77-25682 and OCE79-06710; and by the Office of Naval Research, contract number N-00014-77-C-0354. We thank Dr. Tom Curtin of North Carolina State University for the loan of an acoustic release to replace one which failed during cruise EN-040. As noted in the first two reports of this sequence, many graduate students and staff at Texas A&M University, North Carolina State University, and the University of North Carolina have contributed to the success of this project. A considerable amount of software and graphics development was necessary during the preparation of the Gulf Stream hydrographic data reports, and we acknowledge the expert services of Mr. Tom Reid of Texas A&M University in computer programming and systems development. We thank captain Bennett and the crew of R/V *Endeavor* for effective services at sea during these cruises.

References

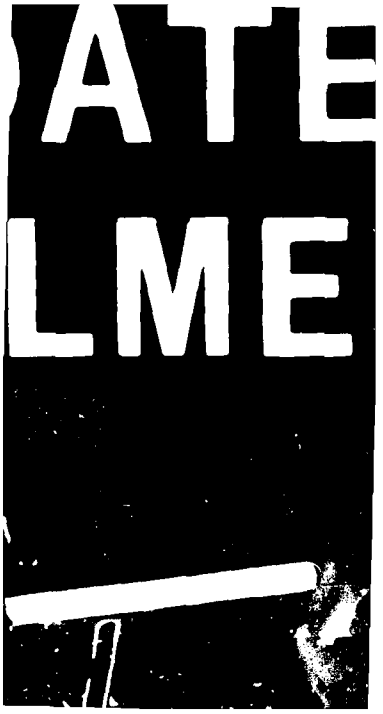
Bane, J. M., D. A. Brooks, and P. Blankinship, 1980: The Gulf Stream Meanders Experiment: Current Meter Data Report for the Mooring Period August to November, 1979, in preparation.

Brooks, D. A., J. M. Bane, and M. J. Ignaszewski, 1980: The Gulf Stream Meanders Experiment: Hydrographic Data Report for R/V *Endeavor* Cruises EN-031 (12-19 Jan 1979) and EN-037 (23-29 May 1979). Texas A&M University, Rep. 80-1-T, 145 pp.

_____, _____, R. L. Cohen, and P. Blankinship, 1980: The Gulf Stream Meanders Experiment: Current Meter Data Report for the Mooring Period January to May, 1979. Texas A&M University, Rep. 80-7-T, 264 pp.

Reid, T. J., 1979: XBT Data Processing System. Department of Oceanography, Texas A&M University. 51 pp.

Sweers, H. E., 1971: Sigma-t, specific volume anomaly, and dynamic height. *MTS Journal*, 5(3), 7-26.


ATE
LME